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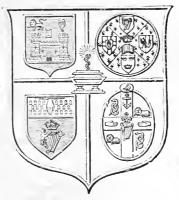
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MARCH 1, 1904.

### PART I.

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As the discovery of radium and its wonderful physical properties has lately aroused so much interest, the investigation of the action of its radiations on the growth of plants seemed likely to produce some interesting results. Accordingly, growing seeds were exposed to the action of a tube containing 5 mg. of radium bromide. Whether the seeds were exposed before or after germination, the effect produced was very small, slight but distinct reduction in the rate of growth of those within the distance of about 1 cm. being all that was observed. In one case a seed germinated immediately under the tube, and the plant grew up in contact with it. This result is of some interest in a negative way as showing the small effect produced on growing vegetable cells of the higher plants.

At the same time experiments were tried with more lowly organisms, as, for instance, with Volvox globator, a motile alga, very sensitive to light and air supply. Careful provision having been made to exclude as much as possible

all extraneous factors, the effect of introducing the radium tube into a test-tube containing these plants was tried. After a day's treatment no effect could be distinguished, as the organisms were distributed uniformly through the water in the test-tube, and were neither attracted to nor repelled from the radium tube.

The action, however, of the radiations on still simpler structures proved more marked, as shown by many experiments with bacteria. In these the organisms were either mixed with melted agar and poured into a dish, or else spread over the surface of agar which had been previously allowed to set. The tube containing the radium bromide was then supported over the surface of the culture and as close to it as possible, and the radiations were allowed to act for various times and under various conditions of temperature. The results were at once seen to be well marked. In many cases the organisms which were within a distance of 1 to 3 cm. failed to grow or were delayed behind the surrounding bacteria. In one of the latest of these experiments agar containing an emulsion of Bacillus pyocyaneus was spread in a layer in a Petri dish, exposed for three days in the cold to the radiations, and then incubated. The tube containing the radium bromide (in this case a dilute sample containing 5 mg. of the pure bromide in 1 grm. of barium bromide) was supported over the centre of the culture and 2 to 3 mm. above it. A sterile patch, roughly 1½ cm. in diameter, appeared after incubation immediately below the tube. It had an irregular margin, the deeper smaller colonies extending further inwards than those on the surface. This patch remained free from colonies, although incubated for several days longer.

In another experiment, a plate culture of B. prodigiosus, made by smearing the surface of agar spread on a flat plate, was exposed for 2 days with the radium tube (5 mg. of pure radium bromide) supported 4 mm. over the centre. The culture was then incubated at 20°C. as a suitable temperature for this bacillus, and developed in the usual way, except that in the centre, immediately under the position which had been occupied by the radium, a

sterile patch appeared about 1 cm. in diameter. The colour of the culture was the usual red, strongest round its edges and 2 or 3 mm. from the patch, and fading gradually towards the centre until the colonies ceased. bably indicates that the colour production was injuriously affected by the radiations, even where they were too feeble to arrest the growth of the bacillus. A shadow thrown by a platinum bar 3 mm, thick, which was supported just over the surface of the plate, was sharply marked out in another case. This shadow, in which the colonies grew more vigorously than in any other position in the plate, could be traced after two days' incubation extending for a distance of 5 cm. across the plate through the apparently unaffected culture; later, however, the growth became more evenly distributed, and the shadow could be seen only where it crossed, or was in the immediate neighbourhood of, the sterile patch.

These experiments, which were successfully repeated with other organisms, such as B. anthracis and typhosus, render it most probable that it is the  $\beta$  radiations which produce this effect on bacteria. Of the other radiations the  $\alpha$  rays are stopped by the glass of the tube, while the  $\gamma$  rays penetrate to a much greater distance than the maximum of 2 to 3 cm. which we observed, and would readily pierce through thin layers of glass and agar, which seem to completely stop those that are effective. The heat, again, given off by the radium is for these experiments quite negligible, while the light, although fairly strong from some specimens, appears to have little effect, since in one experiment a screen of very thin platinum foil had no appreciable effect in diminishing the inhibition of growth.

In our experiments three degrees of inhibition were observed in the region immediately under the tube containing the radium:—(1) In some cases in which the growth of the bacteria was rapid, having been early placed under favourable conditions, even while the radium was present its inhibitory action was not enough to hinder development, but only to slightly retard growth; (2) in others growth took place as soon as the radium was removed; and (3) in the greatest number of cases no growth occurred even after

prolonged incubation free from the action of the radiations. It became necessary, accordingly, to ascertain whether in this last series of experiments the bacteria were destroyed. With this object sub-cultures were made from the patch into broth tubes, in all but one of which the organism used grew readily, proving that in the patch there were living bacteria, which for some reason were unable to develop into colonies without being removed to a new culture medium. On the other hand, if the patch was inoculated with bacteria from outside, they failed to grow.

From this it naturally follows that some change had taken place in the medium in which the bacteria had been distributed, and it was possible that this change was directly due to the action of the radium. To find whether this was so, inoculated plates were exposed to the radiations for three days, and then inoculated by being brushed over with an emulsion of the bacteria. In every case the bacteria grew quite evenly, showing that the radium had not injuriously affected the medium. The possibility of diffusion alone being adequate to maintain sterility in such a patch may be seen from the following experiment:—A sterile patch was produced artificially by cutting out a piece of the agar from the centre of an inoculated plate. and filling up the hole with sterile agar. It was found that after two or three days' incubation bacteria would not grow on this patch.

These experiments, which were several times repeated, show tairly conclusively that the patch remains sterile because the bacteria in it, although not killed, are kept back until, by the growth of those in the rest of the culture, they are prevented from developing, either by the extraction of their food material, or by the introduction into the medium in which they are lying of toxins, or other products of metabolism. That there is very distinct diffusion could be seen by the examination of the results of experiments with *B. pyocyancus*. This organism produces a green diffusible colour, which can be seen after two or three days' growth extending into the agar 5 mm. or more round isolated colonies, or 3 or 4 mm. inwards towards the centre of a sterile patch.

ART. VII.—Clinical Pictures of Children's Diseases. By W. LANGFORD SYMES, M.D., F.R.C.P.I.; Pathologist to the Royal City of Dublin Hospital; Physician to the Orthopædic Hospital of Ireland, &c.

#### NO. XXIII. RICKETS.

In writing a brief description of this disease we find ourselves face to face with the most important and far-reaching of all the affections of childhood. No class of society is exempt, and we see grave cases alike from the nobleman's castle and labourer's cottage. It is a "general" disease, inasmuch as the digestive, respiratory, nervous, and osseous systems participate in the dystrophy. It is difficult to give a concise definition of rickets, but it may be described as a general disease arising from malnutrition, affecting young infants from birth onwards, producing gastro-enteric disturbances, peculiar nervous phenomena, and profound changes in the bones, leading to deformities of the frame and stunted growth.

There are some varieties of the disease discernible in its clinical picture. "Small rickets," or "puny rickets," describes those cases where wasting is extreme, and arrest of growth has early taken place. "Large rickets" is commonly seen in overfed children of heavy, bloated frame, fat and unwieldy, but soft and "flabby," and exhibiting its most intense forms. "Syphilitic rickets" is merely rickets accidentally superadded to the troubles of a congenitally syphilitic infant, for the diseases are quite distinct, and is known especially by the presence of craniotabes and extreme "bossing" or nodular elevations on the cranial bones. These

<sup>a</sup> These short essays have been dealt with mainly from the clinical aspect of the subject, as practical acquaintance with these diseases is much needed by senior students. They are based on original observations as recorded in my own case-books.

b The term "rachitis" (βάχις, the spine) was coined by Glisson in 1650, because of the spinal affection; but the disease was previously described by Dan. Whistler as "the rickets" in his book published in 1645. This work is now exceedingly rare, but a copy exists in the Bodleian Library. The disease is evidently of great antiquity, for a statue of Æsop, of which a cast exists in the South Kensington Museum, is said to exhibit the old English "wrikken," to twist, whence the term rickety was applied to tottering furniture.

are termed "Parrot's nodes," after the professor who strongly affirmed the identity of the two diseases. Other evidences of congenital syphilis are usually present. So-called "feetal rickets," or "ante-natal rickets," is intra-uterine in origin, for the dystrophy can occasionally be induced during the pregnant period of the mother by privations. serious illnesses, and numerous circumstances which may undermine feetal nutrition. Extreme cases resembling this condition have been termed "achondroplasia" a (or "chondrodystrophia fœtalis"), signifying arrested enchondral ossification in intra-uterine life; but here the bone changes are not truly rachitic, the stunted growth being due to the diminutive size of the shafts of the bones while the epiphyses remain large. This latter is an entirely different condition. "Late rickets" comes on after the second year, appearing even as late, in some instances, as ten years, but it is not so frequently observed—in fact, it is a condition of great rarity.

The disease can be divided into two distinct clinical stages—first, the early stage, where characteristic evidences are present, in which the disease is easily remedied by appropriate treatment, this I would term for convenience the sweating stage; and secondly, the established or permanent condition, where curvatures have become fixed in the bones, and a deformed frame results. It must not be imagined that the only changes worth noting are the bony ones; quite the reverse. But, as far as the stages which can be recognised in all cases go, the bony deformities mark indelibly the fixity of the permanent injury. Its early recognition is, therefore, of the most vital importance.

Etiology.—The actiology of rickets is now tolerably clearly understood. I do not think I have ever seen a case where I could not trace to its origin the cause of the disease. It is always some defect in nutrition. In some cases, but not in many, this error can be traced to bad health in the mother during pregnancy—i.e., rapid child-bearing; suckling during

<sup>&</sup>lt;sup>a</sup> Achondroplasia, like rickets, must be of great antiquity, for Mr. George Pernet (British Journal of Children's Discuses, Jan., 1904) gives interesting sketches of old Egyptian statuettes, or representations of some of the ancient gods alluded to by Herodotus, from the British Museum, which exhibit the features of this disease. There is also in this Museum an archaic representation of a dwarf which goes back to 4000 B.C.

pregnancy, in which case both children may become rickety, the infant at the breast and the child in utero; phthisis; anæmia, &c. One of my cases was produced clearly by hyperemesis, or constant vomiting during pregnancy. After birth this child was apparently properly fed, but was born in a state of low nutrition, and rickets developed. It was, however, subsequently arrested by treatment. In another case twins were born, and one became rickety, the mother having gone through a severe attack of rheumatic fever during this pregnancy. In these cases the intra-uterine origin of the disease was clearly established. These cases are. however, rare. In the majority we find undoubted evidence of the evil effects of improper food. City life in warehouses and crowded slums has led to the impression that such environments cause it, but I have seen only one case where with these evil surroundings improper food could not be added as the true cause; while the worst case I ever met with came from the country.

Literature contains evidence that this idea is still prevalently held by many, as it was by the late Dr. Charles West, and that want of ventilation and bad air are prime causes of the disease. When speaking of condensed milk and its low nutritive value I alluded to this point, and a notable example of the fallacy has been related to me by a friend who has lived in the Falkland Islands. Rickets abounds amongst the children of the inhabitants in this group of islands. Its prevalence is quite remarkable. It appears that the high winds, which blow all day long there, are so violent that vegetable growth is stunted, and consequently grass and fruit cannot be cultivated. Hence an abundance of fresh milk cannot be had. Butter is bought at five shillings for two lbs., and is imported "canned" or tinned; while fresh milk cannot be obtained. The infants are, therefore, reared on condensed milk. These remarkable conditions of life are instructive to the student of rickets, for fresh, pure air and ventilation are here so excessive as to actually stunt the crops, while fresh milk, fruit, and vegetables cannot be had at almost any price. This goes far to disprove the supposed influence of insanitation in producing rickets, as held by some, while it immeasurably strengthens the view

which, from experience, I have always strongly held—that rickets is almost entirely a food disorder. I do not mean to minimise the evil effect of hot, ill-ventilated rooms, but I do contend that foul air acts secondarily to improper food.

E. M. Sill (*Med. Record*, Dec., 1902) recently cited 179 cases of children who were fed on sterilised milk, fresh, uncooked milk being withheld, and in 97 per cent. of these children rickets or scurvy developed.

With Professor Parrot's doctrine that rickets is invariably the outcome of syphilis my experience is at complete variance, and I have never seen the slightest evidence to support it beyond their accidental association.

The water theory, that lack of lime salts in drinking water was a prime cause, for many years held the field, but, except in one case, I have never been able to discover any ground for the belief. In this instance the child was fed on Mellin's food diluted with rain water, no other being available, since they had lived in Australia. But even here the food was erroneous.

With the foregoing few exceptions, which are extremely rare, the cause of rickets may be clearly stated as improper food. Artificial feeding from birth is undoubtedly the chief cause in most instances, and in nearly all the presence of starchy food is found as the prime factor.

The foods I have found most frequently used during early infancy in these cases of rickets are the following in their order of prevalence in Dublin:—

. Bread and milk

Neave's food (and other patent foods).

Arrowroot

Oatmeal

Sago

Cornflour.

Then follow in equal proportions of cases:—Rusks, tea, gruel, potatoes, biscuits.

These foods may be eminently suited to children of older years, but administered to young infants under 12 months they are a most certain and positive cause of rickets. The exact pathological sequences which follow before rickets is produced are not as yet made clear by research; but in the first instance

gastro-intestinal disturbance arises, and I apprehend that alimentary toxins are formed, which cause the general dystrophy. This, which one might term the positive theory of the direct mischief to which starchy food gives rise, must not be held as the sole cause: but it is remarkable that in all my cases direct administration of vegetable foods preceded the disease. Truly vegetarian diet is an absolute impossibility for human beings, and for young infants it is the surest way to produce rickets. There is, however, also a negative factor, which in all cases accompanies the feeding, and it is a question which pathology has not yet solved—which is the most mischievous? I allude to the absence of animal food from the diet. Since rickets can be readily arrested by stopping the vegetable and substituting animal food, there is considerable evidence that it is the want of animal elements in the diet which induces the disease.

There is no doubt that fat and suitable proteid are the two main elements which will cure the trouble, especially the former, and in many cases healthy children can be reared upon artificial foods, provided a sufficient quantity of fat or cream be incorporated therewith. Butter, cream, cod liver oil, gravy and meat juice are the natural and sure antidotes for rickets, and in artificial feeding it is just the lack of these important animal and fatty elements which is notoriously common. When these elements rapidly cure the trouble in the early stages, one cannot doubt that the negative factor of the absence of animal and fatty food in the diet must be equally important in the causation of rickets as the positive injury which vegetable foods undoubtedly inflict. The normal diet of the child is a purely animal food of nutritive value with a high proportion of fat, and rickets will be most certainly produced if a vegetable diet is substituted therefor; moreover, it will be cured easily if a properly nutritive animal diet is again resorted to. These are definite physiological and clinical facts, and, in my experience, operate entirely independently of sanitation and water supply, and stamp the disease as altogether a food disorder.

Rickets is thus clearly a diet disease and a preventable malady, and, much as we may dislike it, we cannot shut our eyes to the fact that the appearance of rickets is a grave

testimony against the management of those in charge of the child during infancy. Some years of very careful study of its actiology and treatment have convinced me of the truth of this statement.

It may be pardoned if in emphasis I repeat the historic experiences of the Zoological Gardens in London, graphically recounted by Dr. Cheadle in his excellent manual on "The Food Disorders of Infants." He says:—

"Mr. Bland Sutton, when hon, pathologist, informed me that the young monkeys, deprived of their mother's milk and fed entirely upon vegetable food, became rickety. The most remarkable case observed was that of two young bears who were fed exclusively upon rice, biscuits, and raw meat, which latter they licked but hardly ate, and who died of extreme rickets. That the condition is a true rachitis there can, I think, be no doubt. There is the same muscular feebleness, the same bending of bones, the same general debility; and the identity of the bony changes has been established by the observations of Mr. Sutton. who has so ably investigated the morbid anatomy of the disease. . . . Many young animals become rickety there, and it had been found impossible to rear the young lions from this cause; they invariably died, and died from extreme rickets. The lion whelps were fed solely upon the flesh of old horses. almost entirely destitute of fat. The bones were found to be proof against the teeth even of adult lions, and those of the cubs were powerless against them. About once a week they had goat's flesh, which is about the fatness of venison. So that, in this case again, animal fat and earthy phosphates would be deficient. The food of the young bears who became rachitic on biscuits and rice, and that of the young monkeys, fed chiefly on bananas and fruits, would be deficient in the same elements. The feeding of the last litter of lion cubs was commenced in the usual way. The dam had very little milk, which ceased entirely at the end of two weeks, and they were then put on horseflesh alone as before; they became rickety, and one died. Then, at Mr. Bland Sutton's suggestion, the diet was changed. The meat was continued, but in addition to it milk, cod liver oil, and pounded bones were given. No other alteration whatever was. made in any way. They were kept in the same dens, with the same amount of air, and the same light, and warmth as before. The change which followed was remarkable. In three months

all signs of rickets had disappeared, and they grew up perfectly strong and healthy and well-developed. It was a unique event in the history of the society. You will observe that no change was made in the conditions of existence, except in feeding only, and the change in the food consisted practically in the simple addition of fat and bone salts. This is a most striking and crucial experiment in the production and prevention of rickets, and seems to be absolutely conclusive as to the chief points in its ætiology."

#### MICROSCOPIC APPEARANCES.

If a section is made through the "bead" of a rickety rib the following changes will be found: —At the normal cartilage end there are no vessels seen, merely hyaline cartilage with oval nucleated cells invested by its fibrous perichondrium. These cells gradually become swollen, branching, arranged in files and rows running towards the bone, but in no regular uniform fashion. No sharp line of demarcation indicates the line of ossification. At this level the cartilage is seen to become highly vascular, numbers of vessels being distended with blood cells, and these become more numerous as we approach the bone. The hyaline matrix now gradually gives place to a fibrocellular stroma, so-called osteoid tissue, in which you see numerous vessels choked with blood, while here and there appear but a few small islets of calcified tissue.

In this region, the widened middle zone of imperfect ossification, the would-be bone is composed of fibro-cellular or osteoid tissue, arranged in trabeculæ, somewhat Haversian in character, while numerous blood-vessels are seen over-distended and congested. The matrix of the so-called bone is thus fibro-cellular, neither true cartilage nor true bone, and excessively supplied with dilated blood-vessels. This fibrillation of the matrix I have seen so clearly in my own sections as to have little doubt of its structure. In the outer zones it may be seen to be continuous with the periosteum, but in addition to this it can be seen to extend far into the central trabeculæ.

Further along towards the shaft of the bone we still find this fibro-cellular matrix, extending with its canals filled with blood, tremendous—but futile—preparations having been made for the building of genuine bone, but which process is arrested short of its true ossification. The trabeculæ of the rickety

bone, although redundant, thus appear to be fibro-cellular, soft, and flexible, instead of being hard and fully ossified. I am aware that this is not the view commonly held, and it may be questioned by others, but from my own observations of my own sections, I am convinced it is so. In order to show this the sections must be very thin, and prolonged staining is required. We see then between the cartilage at the one end and the imperfectly developed bone at the other, a widened area of disease, whose chief characteristics are:—(1) An excessive and abnormal blood supply—a condition of chronic congestion, evidenced by dilated blood-vessels, which is very striking; (2) an excessive fibrosis or fibro-cellular growth extending in all directions even into the central trabeculæ; (3) a postponement of the deposition of lime salts in this tissue.

It is reasonable to suppose that the first two conditions are closely related, as they undoubtedly are in other organs, and that the excessive fibrosis, which, I believe, swells the rickety bone, is caused by the abnormally increased blood supply. Chronic hyperæmia in other organs leads to fibrosis, and it is reasonable to assume that the same may occur in growing bone.

This vascular dilatation is evident all through the section, and you see it beginning at the cartilage end even before the bulbous fibro-cellular area is reached, and through which area it is still abundantly present.

Having arrived thus far in tracing the pathology of rickety bone by the microscope to fibrosis and vascular dilatation, and knowing from experience on the clinical side that the causes of the disease undoubtedly lie in the administration of food which ferments in the stomach and intestines, the link necessary to complete the chain is the proof that this gastro-intestinal fermentation in some way acts on the vaso-dilator apparatus. How far it does so by alimentary toxins, disturbance of the gastric acidity, or micro-organisms, I hope at a future time to discuss.

# Art. VIII.—Antitoxin in Diphtheria. By H. C. MacQuaide, M.D., Univ. Dubl.

Antitoxin, or antidiphtheritic serum, began to be used as a remedy for diphtheria about twelve years ago. Its use and preparation were suggested by Behring and Kitasato in 1890, who were experimenting with a serum for the neutralisation of the tetanus virus, and suggested the application of the same principles in the case of diphtheria. It was first tried in von Bergmann's clinic in Berlin. The serum was very weak, and the dosage, as we know now, entirely insufficient. The serum was at that time prepared by using small animals.

Ehrlich and Wassermann, by using goats instead of the smaller animals, obtained a serum 20 to 60 times stronger than before. This they used the following year in over 200 cases, with a mortality of 23 per cent.; this was good compared with the previous mortality of 35 per cent.

Kotz the same year prepared a serum from horses, which he used in 163 cases with even better results.

From this time the attention of the general medical world was drawn to the subject, and antitoxin was widely The results at first obtained were apparently so contradictory that it was held by many to be useless, if not dangerous. In some cases the patients injected developed tetanus, and this naturally retarded its general use. The cause of this accident was soon discovered and removed, and the serum which is now prepared can be relied on to be free from the tetanus bacillus. Still it cannot be said that we have yet obtained an ideal serum, for there is little doubt that the use of the present serums is often followed by complications such as rashes, joint-pains, and pyrexia. Now these complications are believed to depend on something in the serum, which has no connection with the antitoxin but is connected with the particular horse from which the serum was obtained, and also with the concentration of the serum. These are defects which in time, therefore, can be removed.

<sup>&</sup>lt;sup>a</sup> A Thesis for the Degree of Doctor of Medicine of the University of Dublin, read December, 1903.

Antitoxin serum has been usually employed subcutaneously, and also both by month and rectum, and as an intravenous injection. Its use both by mouth and rectum has not been successful. This was only to have been expected from a consideration of Ehrlich's theory of immunity, which is now generally accepted, and which assumes that the immunising or antitoxin value of a scrum depends on the molecular arrangement of the antitoxin body, which is a proteid substance, and would be entirely altered in the process of assimilation from the digestive tract.

His theory, too, throws considerable light on the reasons why the antitoxin has not been more successful as used heretofore, for, remembering the extraordinary complexity of the proteid molecule, it explains the urgency there is for using the antitoxin as soon as possible.

My experience of antitoxin extends over the last four years, during which time I have used it in about 100 cases of diphtheria. I have always used it subcutaneously. This method is open to the objection that abscess may follow at the seat of injection.

Having prepared the skin so as to make it as aseptic as possible, I usually injected the serum under the loose skin beneath the angle of the scapula. I have never found an abscess follow the injection. The method is not usually painful, even for large quantities of serum. This seems partly to depend on the sex of the patient, for I have almost always found in children that the males were more sensitive to the pain of injection than females.

The first case of diphtheria in which I used antitoxin was the most virulent I have seen, the patient dying within three days from the onset of her illness. I saw her on the third day of the disease, and found her almost comatose, and with every appearance of profound toxæmia. She was roused with difficulty; her extremities were cold, her respirations shallow, and pulse feeble and rapid. On examining her throat I found both hard and soft palate, tonsils, and pharynx covered with membrane. I injected 4,000 units of antitoxin subcutaneously in the abdominal region without any apparent effect, as she died a few hours later.

This case might lead one to doubt the efficacy of antitoxin n cases so severe, but more recent experience has shown that even in such cases antitoxin, if properly administered. may save the patient. I refer to the method of intravenous injection. This was first practised last year by Dr. Cairns, of Glasgow. His results show that the intravenous method may be successful even in the most severe cases. description of the case in which he first practised this method is as follows:—"The patient was pulseless, and apparently moribund, the extremities as well as the surface of the body being cold and livid, the lips were swollen and evanotic, the face puffy and yellowish-white in colour; the heart was beating very rapidly, the respirations 60 to the minute, there was laryngeal obstruction; tracheotomy was performed with little relief, and then 26,000 units of antitoxin were injected into the median basilic vein. The patient slept well after the operation. For 36 hours she scarcely improved, during which time she had repeated injections of strychnine and caffeine, which had a beneficial effect on the pulse; then signs of improvement began to show themselves coincidently with a copious discharge of muco-purulent matter from the tube. From this point the patient steadily improved, and made a good recovery." This is not a solitary case, as Dr. Cairns has now a series of 50 consecutive cases, in 20 of which he has used the method of intravenous injection. He was led to try the intravenous method from his experience with plague serum, where he found that the serum seemed to lose a large percentage of its efficacy in passing through the lymphatic circulation; this, too, is in accordance with Ehrlich's theory, for assuming the autitoxin to be protoplasmic and not a fixed chemical substance, it can easily be imagined that it might be fundamentally altered in passing through the lymphatic glands. The result of his 50 cases gave a mortality of only 6 per cent.

The value of antitoxin depends greatly on the time of its administration, independently of the amount or method of using it. I found in my cases that if injected the first day in sufficient quantity (and latterly I never injected less than 2,000 units) it usually cut short the attack, and in some cases so rapidly that I was compelled to doubt the

accuracy of my diagnosis. The following case of diphtheria in which I injected antitoxin the first day is typical of many in my experience:—The patient, a girl aged five years, had been heavy and drowsy all day. I saw her that evening and found her in a feverish condition. On examining the throat I found the tonsils and part of the pharvnx and soft palate covered with a tenacious membrane. I attempted to remove some of it from the soft palate, which bled easily. then injected 2,000 units of antitoxin, and the following morning she was much better; the drowsy, stupid condition had passed off, and the membrane had begun to separate at the edges, rolling off as it were, to be finally coughed out. This was the usual course of the pharyngeal cases, if injected the first day. This corresponds with the general experience for Dr. Otto Jelisch, who has analysed over 127,000 cases from all sources, and finds that cases injected with antitoxin the first day give a mortality of only 5 per cent.

As a rule, the cases injected with antitoxin the first day may be expected to make a rapid recovery. The exceptions in my experience were those cases in which the larynx was involved, while a reference to a report of the Metropolitan Asylums Board shows, as might be expected, that in cases of mixed infection where streptococci, and more often staphylococci, are found in the membrane, antitoxin is not nearly so successful.

The following is a laryngeal case:—The patient was a boy aged about five years, he was in the dull, toxemic condition which is characteristic of severe diphtheria. There was no membrane visible; he had a croupy cough, and inspiratory stridor. I injected 2,000 units of antitoxin, and had him placed in the steam tent. The following morning, as he did not appear much better, I injected another 2,000 units. He was very restless, cyanosed, and apparently sinking. I advised a tracheotomy; this was refused. Before the evening, however, he began to cough more softly, and from that time he made an uninterrupted recovery.

My next laryngeal case was in a child who had previously had several attacks of simple catarrhal laryngitis. I did not inject until the third day. In this case, too, I injected the serum into the abdominal region, but unsuccessfully, the

patient dying the following day. This case shows both the necessity of early injection and of larger doses of the serum.

It has been stated that the use of antitoxin predisposes to the occurrence of post-diphtheritic paralysis. I have had but one severe case of this kind. It was fatal. The patient, a boy aged ten years, had his pharynx and tonsils severely affected; the membrane, however, did not spread to the larynx. I injected him with 2,000 units of antitoxin the first day of his illness. The following day the membrane separated and his general condition was much improved. On the 9th day, however, he began to have difficulty in swallowing from paralysis of his soft palate, and later his heart began to fail. He died of syncope on the 18th day of the disease.

In referring to the various statistics relative to this point, it would appear that paralysis is more frequent with the use of serum, and this can be explained by the fact that in serum cases, terminating fatally, life is much prolonged, and thus the paralysis has time to develop. Ransom's experiments on animals throw much light on this question, for he finds that paralysis depends on the toxicity of the inoculation, and that neutralised doses of toxin and antitoxin do not appear to cause paralysis. It is thus fair to assume that in severe cases, with a great deal of toxemia, paralysis is likely to occur if the patient lives long enough, and that if antitoxin is given early and in sufficient amount paralysis will probably be prevented.

By thus prolonging life in these cases opportunity is given for the use of other means of eliminating the toxin.

Schoull, of Paris, in an apparently hopeless case of post-diphtheritic paralysis, which had been treated with antitoxin, injected a litre of Hayem's serum into the median basilic vein to wash the blood as it were. This gave a marvellous result; the patient in a dying condition in the morning, appeared out of danger in the evening, and he made a complete recovery.

As a preventive of diphtheria antitoxin has proved remarkably successful. In some large institutions, in which formerly the disease was never absent, since the introduction of the practice of giving immunising doses of antitoxin. the disease has been completely exterminated. It has been found that antitoxin only confers immunity for about three weeks.

My experience with antitoxin, then, would suggest the following conclusions:—Every case of diphtheria should be treated with antitoxin; the serum must be given early and in large doses; and all individuals exposed to infection should be given immunising doses of antitoxin; finally, the serum is a specific in diphtheria if properly used.

ART. IX.—Some Public Health Problems in Ireland.<sup>a</sup> By SIR JOHN W. MOORE, M.D., D.P.H., Univ. Dubl.; F.R.C.P.I.; President of the Section of State Medicine in the Royal Academy of Medicine in Ireland.

#### INTRODUCTORY.

For the third time I have been called to preside over this Section of the Royal Academy of Medicine in Ireland. It is hardly necessary to say that I look upon such a mark of confidence as a very signal and gratifying compliment, of which I may well be proud, and for which I return you my most hearty thanks.

On February 5, 1885, I addressed this Section—or, as it was then, Sub-section—of the Academy on "Sanitary Organisation in Ireland in its Medical Aspect." Two years later, on February 3, 1887, the subject of my Inaugural Address was "The Present and the Future of State Medicine."

In the seventeen years, which have passed away since the latter date, State Medicine has made unexampled progress in all its departments—Sanitary Organisation in Ireland, on the contrary, has advanced "with halting steps and slow." Yet substantial advance has taken place in many directions even in this country.

#### NOTIFICATION.

In 1887 I had to deplore an uncompromising opposition to the principle of Compulsory Notification of Infectious Diseases on the part of the vast majority of the Medical

<sup>&</sup>lt;sup>a</sup> An Address inaugurating the Session of 1903–1904, delivered before the Section of State Medicine in the Royal Academy of Medicine in Ireland, on Friday, February 12, 1904.

Profession. On the 30th of August, 1889, an "Act to provide for the Notification of Infectious Disease to Local Authorities" (52 & 53 Vict., chapter 72), received the Royal Assent at the hands of Queen Victoria, most revered and best beloved of British Monarchs. All opposition to the principle of notification has long since happily died out, and the Act has now been adopted practically throughout the length and breadth of the land, with untold benefit to the public health.

The provisions of the "Infectious Disease (Notification) Act, 1889," are too well known to the Fellows and Members of the Academy to need any explanation at my hands. I may, however, refer to a useful application of the Act, whereby comparatively trivial infections which simulate more serious maladies, like chicken-pox in its relation to small-pox, or rubella in its relation to measles or scarlatina, are temporarily added to the schedule of notifiable diseases when the more deadly infections threaten to be, or are, epidemic.

On August 4, 1890, an "Act to Prevent the Spread of Infectious Disease" (53 & 54 Viet., chapter 34), shortly called the "Infectious Disease (Prevention) Act, 1890," was put upon the Statute Book, with the object of enabling sanitary authorities to give practical effect to preventive measures based on information obtained through notification.

These two measures—the Magna Charta of Public Health—passed by an enlightened Legislature, have been cordially received and worked by the Medical Profession, who with a noble self-denial have once more admitted the truth of the adage—"Salus Populi, Suprema Lex."

### QUALIFICATIONS IN PUBLIC HEALTH.

A second great advance has been the official recognition of Diplomas in State Medicine or Public Health. The initial step had been taken in 1886, when the Medical Act (49 & 50 Vict., chapter 48), by its twenty-first section, provided for the registration by the General Medical Council of "Diplomas in Sanitary Science." Since January 1, 1892, the Medical Officer of Health of a county, district or combination of districts with a population of 50,000 or upwards, must, in addition to his qualifications in medicine, surgery and midwifery, be registered as the holder of a Diploma in Sanitary

Science, Public Health, or State Medicine, under Section 21 of the Medical Act of 1886. It is gratifying also to note how many officers in the Naval, Military and Indian Medical Services are taking this higher qualification. In my Address to this Section in 1887, I recalled the fact that to the University of Dublin belongs the credit of having been the very first institution in the United Kingdom to establish a Diploma in State Medicine, or (as it is now called) "Public Health." The first examination for the Diploma took place in June, 1871—nearly three and thirty years ago—when it was granted to Dr. Arthur Wynne Foot, Dr. Gerald Francis Yeo, Dr. John Todhunter, and myself.

### TUBERCULOSIS AND ITS PREVENTION.

A notable contribution to the literature of this all-important question has very recently been published. I refer to an article in Tuberculosis for January, 1904, on "The Present Position of the Tuberculosis Problem in Ireland," by Dr. Alfred E. Boyd, Honorary Secretary of the Dublin Branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis. Dr. Boyd shows by figures taken from the Annual Report of the Registrar-General for Ireland for 1902 that the deaths from tuberculosis in Ireland in that year were 11,837, against 12,335 in 1901, and an average of 12,716 in the ten years 1891-1900. Phthisis, or pulmonary consumption, was responsible for 9,400 deaths in 1902. The highest county death-rates for tuberculosis in general for the same year are-Dublin County Borough, 4.7 per 1,000 of the population annually; Belfast County Borough, 4.0; Dublin County, 3.5; Cork County and Cork Borough, 3.0. The lowest rates are—Cavan, 1.5; Roscommon 1.6; Mayo, Fermanagh, Longford and Donegal, each 1.7.

For the whole country the deaths in 1902 represent an annual death-rate of 2.7 per 1,000 of the population—the lowest rate recorded in Ireland since 1896. Commenting on these figures, Dr. Boyd observes: "The upward tendency, which during recent years has caused grave anxiety, has thus been checked, and there is ground for hope that ere long there will be a substantial decrease in the prevalence of tuberculous disease in Ireland."

Having described what has already been done in Dublin to cope with the evil, Dr. Boyd sets forth the chief measures still required, in order to control tuberculosis in the metropolitan district as follows:—

1. The extension and development of existing institutions for the isolation of the incurable, and for the treatment of

patients in the early stages of consumption.

2. The provision of public bacteriological laboratories.

3. Compulsory notification of phthisis.

4. The instruction of all consumptives and the periodical disinfection of their houses by the local authorities.

5. The prevention of spitting in public vehicles and

thoroughfares.

6. The instruction of the young in schools in the principles of general hygiene, and in the special means which may be adopted to prevent tuberculosis.

It seems to me that some such scheme as the following should be carried out with the view of checking the awful

ravages of consumption in this country:

I. The rise and spread of tuberculosis in the cottage homes of the peasantry and in town dwellings must be grappled with by—

1. Notification, which should be compulsory.

2. Verification of the diagnosis by means of bacteriological examination of the sputum, &c.

3. Removal of the patients to "hospital," using the term in its fullest sense.

4. Periodic inspection of the homes of the tuberculous.

5. Periodic disinfection of those homes.

II. The provision of "hospital accommodation" for-

1. Early cases, with a view to cure.

2. Advanced cases, to provide comfort for the dying, and to secure safety for the living.

[The expression "Hospital Accommodation" should include "isolation hospitals," "sanatoriums," "consumption wards," and hospices for the dying.]

III. The vigorous and absolute segregation of tubercular cases in workhouses, asylums, and other public institutions.

IV. Education of the public in all matters relating to the prevention and management of pulmonary tuberculosis.

V. Improvement of the housing of the working classes and of the very poor, especially in towns.

### THE HOUSING OF THE POOR.

Closely connected with the prevention of tuberculosis is the question of the housing of the working classes and of the very poor-a very burning question in Dublin of late years. It will be within the recollection of the Fellows of the Royal Academy of Medicine in Ireland that in 1900 the Local Government Board for Ireland appointed a Committee to inquire into the public health of the City of Dublin. In their Report, dated May 14, 1900, the Members of that Committee made special allusion to the insanitary circumstances in which a considerable proportion of the population of Dublin lives. "Large tenement houses, each room occupied by a separate family; the house itself in a state of dilapidation: water supply inconvenient of access; dirty common stair-cases; inadequate water-closet accommodation in a foul state; back yards ill-paved and littered with refuse and excrement, are conditions of life in Dublin which are frequently encountered in connection with the dwellings of the poorer classes." The Committee point out that these conditions tend to produce a state of lowered vitality favourable to the contraction of disease, and to a fatal result of disease when contracted. They also directly encourage the spread of infective maladies, including phthisis and other forms of tuberculosis, which are excessively prevalent in a fatal form in Dublin. Strict cleanliness in the home is of the first importance in checking the spread of consumption, and cleanliness finds no place in most of the houses occupied by the Dublin poor. And, in this connection it has to be borne in mind that the proportional amount of poverty in Dublin is very large, so that the unfavourable conditions associated with the houses of the poor are widely spread throughout the city.

The very first measure for improving the health of Dublin recommended by the Committee refers to tenement houses. It is pointed out in the Report that any improvements in these numerous and widely scattered insanitary dwellings must react favourably on the health of the city. The walls and structural parts of many of the large houses, which were

formerly the residences of only one family each, but which are now occupied by a number of separate families, are in fairly good order. But the structural conditions of many tenement houses more recently built are much less favourable. In the inadequacy of sanitary accommodation for these houses, danger to public health also arises.

The Committee go on to state that "the question of the housing of the poor of Dublin is one of magnitude. The provision of an adequate number of healthy dwellings by way of relief for the present overcrowding of population under unhealthy conditions in congested districts of the city must, of necessity, be on a considerable scale, and would probably involve several schemes for this purpose. Accordingly, in schemes for the provision of dwellings for the poor, there would be advantage in selecting sites in neighbourhoods less densely populated than those now inhabited by the class for which such provision should be made. These sites could best be obtained outside the city, in localities within easy access of the principal business quarters of Dublin. In these schemes it should be borne in mind that healthy dwellings are especially needed in Dublin for the very poor. Houses, therefore, intended with this object should be of the plainest kind, in order that such schemes may not entail heavy loss upon the ratepayers."

As to this last point, we must remember that anything which will reduce the liability to epidemic disease will be a direct saving to the ratepayers. It was calculated that the small-pox outbreak of 1878 cost the City of Dublin not less

than twenty thousand pounds sterling.

In the paper from which I have already quoted Dr. Boyd points out that much has been done, and is being done, in Dublin to mitigate the evil of overcrowding. The Dublin Artisans' Dwellings Company, the Iveagh Trust, and the Corporation of Dublin, "have erected modern buildings on sites which were formerly covered by houses in which sanitation was too often primitive, and in which healthy existence was almost impossible; while the Association for the Housing of the Very Poor, the Social Service Tenements Company, and the Alexandra Guild have, in a smaller way, attacked the problem by buying buildings which were capable of

renovation, rendering them sanitary, and letting them to the poor at rents which cover expenses, and in some cases allow of a small rate of interest being paid on the capital invested." The Social Service Tenements Company is worked by students and others connected with Trinity College. Dublin. The Alexandra Guild is connected with the Alexandra College, Dublin, an institution for the higher education of women. The Urban District Councils of Rathmines. Pembroke, Kingstown and Blackrock are also engaged in extensive building operations for the better housing of the working classes and the poor. In the very heart of the city the space between the ancient Cathedrals of Christ Church and St. Patrick has, within the past few years, been changed as by a magician's hand. A charming park and wide, wellpaved streets, with airy well-built houses, have taken the place of squalid lanes and alleys, reeking with filth and hot-beds of disease—typical "fever-nests," such as were so graphically described by the late ever-to-be-lamented philanthropist and sanitarian, Dr. Thomas W. Grimshaw, C.B., Registrar-General for Ireland. In many other districts also, both north and south of the River Liffey, wholesome homes for the industrious working classes have sprung up under the auspices of the Dublin Artisans' Dwellings Company. "Old Dublin" is, in fact, rapidly disappearing and with it typhus fever has already well nigh disappeared.

#### WORKHOUSE REFORM.

I wonder whether at the present time a single champion of the existing Poor Law system of Ireland could anywhere be found.

In the first place universal suffrage and the Local Government (Ireland) Act of 1900 have flooded the Boards of Guardians all over the country with "representatives" of the sovereign Plebs. In many instances these men are, from the accident of their birth, social position, calling and education, incapable, however well-meaning they may be, of discharging their duties to the poor and infirm in an enlightened, philanthropic spirit, untrammelled by political and sectarian considerations. A single instance by way of illustration must suffice:—The Medical Officer of Granard

Workhouse—himself a Roman Catholic—complained that his patients were not being properly nursed. The nurses were Nuns, the rules of whose Sisterhood forbad them earrying out certain details of sick nursing. What was the result? The Sisters resign. The Bishop of the Diocese espouses their quarrel. An unseemly wrangle between the Local Government Board and the Guardians ensues, and drags on for months. The Bishop insists on an apology to the Nuns by the Medical Officer, who did nothing more than his duty. And so the interests of the sick poor are wantonly sacrificed.

But matters are even worse when we come to consider the internal economy of the workhouses of our land. As it exists, it is a grave scandal and a national disgrace.

The "workhouse system," says Miss Emily Buchanan (herself a Poor Law Guardian) in a paper read by her before the Philanthropic Reform Association on September 22, 1903, "is unjust and distasteful to the sick and helpless classes, and is only too attractive to the undeserving who thrive upon its corruptions. In no other country in Europe, outside the United Kingdom, is such a system to be found."

People of all ages and of both sexes are massed together in institutions where, contrary to the Law of Nature, they are supplied with the necessaries of life without the trouble of working to obtain them. The sick poor who enter the workhouse hospitals become ordinary pauper inmates of the workhouse if they do not leave at once when convalescent. Sane epileptics drift from the union hospital into the lunatic wards. Imbeciles and the harmless insane are found in nearly all the workhouses of Ireland. Respectable old people are housed with the unworthy, the dissolute, and the degraded. But it is the young children who are in the most wretched ease. Born, it may be, and bred in the workhouse and its squalid surroundings, what hope is there that pauper children will make good citizens of the State in after-life? Surely their pitiable condition calls loudly for redress. Reform should proceed on some such lines as the following:-

- 1. All children should be boarded out, and properly educated.
- 2. The respectable aged poor should also be boarded out. In Denmark there are asylums apart from the workhouses

for the reception of old men and old women, who, through no fault of character, but by reason of advancing years and failing powers, have been reduced to penury. In these asylums they find a comfortable home and retain their selfrespect.

- 3. No lunatics or epileptics should be admitted to the workhouse. This is the law in England and Scotland.
- 4. The union hospital or infirmary should be entirely separate from the workhouse: nor should the hospital patients be drafted into the workhouse when convalescent.
- 5. It is desirable that women inspectors should be appointed under the Local Government Board. The principle of such an appointment has already been admitted in regard to boarded-out children. To the Irish Workhouse Association, headed by its noble President. Lord Monteagle, is due the credit of initiating this great reform.
- 6. The employment of fully-trained nurses should be compulsory on all Boards of Guardians.

These are some of the lines along which Poor Law Reform should move.

It will be objected that all this means expense and a raising of the Poor Rates. Even if it did, the welfare of the poor outweighs the silver and gold. But a vast improvement in the directions indicated can be achieved at a comparatively slight cost, provided retrenchment is effected in other directions. I have heard it alleged—I cannot vouch for the correctness of the statement—that, of the Poor Rates, 60 per cent, is spent on salaries, and only 40 per cent, on the poor!

### THE POOR LAW MEDICAL SERVICE.

At last—after long years of unaccountable apathy—the Medical Profession appears to be awaking to a sense of the grave and most unsatisfactory state of what may be called "The Home Medical Service." The lot of the average dispensary medical officer in Ireland is, of a truth, not an enviable one. Overworked and underpaid, at the beck and call of masters whose views as to his duties and their rights are not always controlled by that "sweet reasonableness" which is begotten of a liberal education and a ripe experience of the world; hampered in his ministrations to the sick by

official book-keeping; with no prospect of promotion after years of toil and drudgery; face to face with the conviction that he must die in harness, or run the risk of retirement without pension or "superannuation"—what a calling is this for a member of a "Learned Profession!"

It is, however, in the aspect of the question which bears on the sanitary organisation of the country that the interest of the State Medicine Section of the Royal Academy mainly centres. The members of the Section will remember that every dispensary medical officer is ipso facto medical officer of health for his dispensary district. He is obliged to perform many and onerous duties, which are specified in detail in an order to sanitary authorities issued by the Local Government Board under the Public Health Act of 1878. Additional duties have been imposed upon him by subsequent Acts of Parliament, such as the Labourers' Dwellings Acts, 1890 and 1893; the Infectious Disease Notification Act, 1889; the Infectious Disease (Prevention) Act, 1890; the Public Health Amendment Acts of 1881 and 1885; the Housing of the Working Classes Act of 1903; and the Local Government (Ireland) Act of 1898.

For these multifarious and highly-responsible duties a shamefully inadequate remuneration has been fixed at the instigation, and with the approval, of the Local Government Board for Ireland. The Sanitary Authorities are no doubt to blame for having so grievously misjudged the value of skilled services rendered to Preventive Medicine by the local medical officers of health; but the chief fault lies at the door of the central controlling authority—the Local Government Board—which should have refused to sanction mere nominal salaries to the medical officers of health, whose duties were bound to be anything but nominal unless the administration of the public health code in Ireland was to be a sham.

As has been already stated, in the year 1900 the Local Government Board for Ireland appointed a Committee to inquire into the public health of the City of Dublin. I had the honour to serve on that Committee, and I need not say with what deep regret I felt bound, after hearing an immense mass of evidence, to subscribe to the following finding of the Committee:—" The evidence laid before us leads to the

belief that the provision of Section 11 of the Public Health (Ireland) Act, 1878, whereby each Dispensary Medical Officer is obliged to act as Medical Officer of Health for his Dispensary District, has worked unsatisfactorily in Dublin, and should be altered."

Let me not be misunderstood. The Committee found no fault with the way in which the duties of medical officer of health had been discharged by the sixteen dispensary medical officers of the City of Dublin districts. Quite the contrary. Their conduct has been on all occasions most praiseworthy, self-denying and devoted. But their executive power existed only in name; they could do little more than report; they were little better than "sanitary sub-officers"—to quote the ridiculous nomenclature of the eleventh section of the Public Health Act of 1878; the many claims upon their time as district physicians curtailed their usefulness as health officers.

Effect, however, has not been given to the recommendation of the Committee that the public health duties of the dispensary medical officers "should be discharged by an assistant medical officer of health, who should receive an adequate salary, and who should give his whole time to the duties of his office." In Dublin, as throughout Ireland, the dispensary medical officers remain the medical officers of health for their respective districts, and what I now contend for is that this hard-worked, badly-requited body of public servants. whose efforts for the health and welfare of the community are often misunderstood, seldom, if ever, appreciated, should be properly recompensed for their services under the Public Health Acts. If this is done, and if the suggestions for the betterment of the health of the people, made by the local medical officers, are carried out intelligently and in a generous spirit, the dawn of a brighter day for the Irish race will at last be near at hand.

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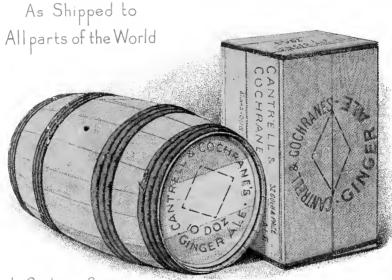
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### PART II.

### REVIEWS AND BIBLIOGRAPHICAL NOTICES.

The Johns Hopkins Hospital Reports. Vol. XI. Nos. 1-9. Baltimore: The Johns Hopkins Press. 1903. Pp. 555. This large volume contains only three papers. The first, which we may call almost a monumental work, is entitled: "Pneumothorar—A Historical, Clinical and Experimental Study." It is by Dr. Charles P. Emerson. It runs to 450 pages, and has been undertaken at the suggestion, and written under the inspiration, of Dr. Osler.

It commences with an account of the literature, in which is given not merely a list of authors, but abstracts, often very extended, of their works. More than 358 such works are analysed, extending from Hippocrates, 5th cent. B.C., to Aron, 1902 A.D.

In the second chapter the history of pneumothorax is given. To Laennec is attributed the most important contribution to our knowledge on this subject, as he first recognised pneumothorax during life, while the Dublin physicians "really gave us some of the best and earliest clinical descriptions of the cases."

In the third chapter we have the ætiology and pathology, with clinical histories of cases. The causes of pneumothorax are classified under diseases of the lungs; thoracentesis; miscellaneous conditions affecting the lungs, such as foreign bodies, hydatids, whooping-cough; diseases of the pleura; traumatic pneumothorax; pneumothorax due to causes external to the chest; and idiopathic pneumothorax, due to the putrefaction and the action of aërogenous bacteria on a fluid effusion. A section on the clinical forms of pneumothorax—as valvular, closed, open, double, active and passive, recurrent pneumothorax—is given. Forty-eight clinical records illustrate many of these cases, and give details of many of the forms, including some examples of the not frequently recorded cases of pneumothorax necessitatis. Fourteen trau-

matic cases also are recorded, mostly bullet and stab wounds, in which, although the lung was certainly injured, pneumothorax did not result.

The fourth chapter is on the mechanics of pneumothorax, including the nature and explanation of the physical signs. In this chapter we have some valuable experimental work by the author.

It has been supposed that a cohesion exists between the layers of the pleura, like that between two plates of wet glass, so that although the visceral and parietal layers can glide freely on each other, they are separated with difficulty. This supposed cohesion would hold the lung in contact with the chest-wall if a small incision were made into the pleura. Dr. Emerson finds that no such cohesion exists. He introduces a few cubic centimetres of air into the pleural cavity of a dog just dead or dying. If cohesion existed the pneumothorax should remain limited to the place where the air was introduced. But after freezing the body and making a cast of the air-containing cavity, it was found that this was always at the upper part of the chest, however the animal was placed. The contact between the pleural layers, or even the bulging of the lung through the wound, which has sometimes been observed, is due mainly to the forcing of air over from the sound lung across the tracheal bifurcation.

Another point on which interesting experimental observations were made is the distension of the side in pneumothorax. Measurements was made of the pleural pressure during inspiration and expiration in dogs.

"If the capacity of the thorax be encroached upon, by introducing successive portions of air or fluid, one would expect the negative tension at the end of expiration to progressively diminish to O, and if the injection be continued to progressively rise in positive value. But this does not happen. To be sure, the negative pressure is soon relieved, and if enough be introduced a large positive pressure is produced; but the matter is not one of steady progression, the animal is able to accommodate itself to a considerable encroachment upon the capacity of its chest, and still have the pressure nearly O at the end of expiration, and to produce almost a normal negative tension at inspiration; this it

can do only by increasing the capacity of the chest by elevating the ribs or depressing the diaphragm. In this way we may have the chest assume very different sizes and still be of the same intrathoracic tension. But the more the distension necessary to maintain this base line of approximately equal expiratory pressure. the greater the muscular exertion necessary to produce the desired negative inspiratory pressure, and we may have the dog now with a slightly distended chest and breathing quietly, now with a distended chest and very dyspnæic, yet with pressures which differ but little, or at least so little that it is not at all in proportion to the difference in air or fluid injected. mechanism by which this is attained is probably reflex; the dogs were under an anæsthetic (ether). With each addition of fluid the chest cannot return at the end of expiration to its previous volume, hence accepts that volume as its zero point, and tries to respire as well with this as its starting point."

Several analyses of the intrapleural gas in pneumothorax have been made. On this subject also we find here an interesting investigation. The following are the conclusions arrived at:—

"If air (or a gaseous mixture containing 98 per cent. of oxygen) be introduced into the chest of dogs there is an almost immediate accumulation of CO<sub>2</sub> and diminution of O in the pleura.

The N per cent. is remarkably constant until a point at which one may suppose absorption of the gas is well under way, when the N per cent. rises about 8 per cent., and then remains quite constant.

The composition of the mixture depends on the gases of the blood and also on the local respiration of the tissues. This is shown by the slow and comparatively slight changes resulting from our suffocation experiments as well as by the work of others mentioned above.

That the local tissue respiration is to be considered is shown by the rapid accumulation of CO<sub>2</sub> after death.

In the case of man the following points may be made:—Gas analysis has very little value in the diagnosis of the condition of the fistula, for—

- 1. There is a rapid accumulation of CO<sub>2</sub> in the pleura after death, which fact rules out the majority of analyses yet published.
  - 2. The presence of a purulent exudate is an important

element in determining the composition of the gas (leading to increase of CO2).

- 3. This post-mortem accumulation of CO<sub>2</sub> may explain the high tension of the gas which hisses from the chest on the autopsy table.
- 4. The method of diagnosing an open fistula proposed by Leconte and Demarquay seems valid."

(This method consists in analysing separately the different successive portions of gas drawn off, and finding an increase in the percentage of O to occur during the aspiration, showing passage of air into the chest through the open fistula.)

In the last chapter the symptoms, course, diagnosis,

prognosis and treatment are discussed.

The second paper in the volume gives the results of Clinical Observations on Blood Pressure, by Dr. Henry Wireman Cooke and Dr. John Bradford Briggs.

The authors employ a modified Riva-Rocci sphygmomanometer. Their records are drawn on charts giving the pulse and blood pressure, and are exceedingly clear and graphic. They find that in children under two years of age a mean pressure of from 75-90 mm. Hg. is to be expected; during early childhood 90-100; in young adults 130. In women the pressure is usually 10-15 mm. lower than in men. In the sitting or standing position the pressure is 5-10 mm. higher than in dorsal decubitus.

Observations made during anæsthesia showed that ether causes a transitory initial rise, with only a slight later fall, and causes no real depressant action, but acts rather as a stimulant. Nitrous oxide induces a rise due to the associated asphyxia. Chloroform is distinctly depressant from the first, and throughout the pressure remains low. Curiously, during labour, which in itself causes a rise of pressure, chloroform may be taken without ill effect.

During operations all procedures which would cause pain, even under anæsthesia, cause a rise of pressure; "the patient may be said to be suffering subconscious pain." Shock during operations is always preceded and accompanied by fall of pressure, and there is no other sign which indicates so surely its imminence.

Surgical and traumatic shock is made the subject of a long section, and very valuable rules are given as to the best methods of treating it in different cases.

Interesting observations are recorded on the fall of blood pressure caused by hemorrhage, and on the variations of pressure occurring during pregnancy, labour and puerperal eclampsia.

Some very striking charts show the transitory lowering effect of amyl-nitrite and of nitroglycerine in conditions of increased tension.

While it is maintained that alcohol, when it produces any effect at all on blood pressure, tends to lower it, it is shown that tobacco raises the pressure.

Valuable observations are made on the pressure in some of the acute infective diseases, particularly typhoid fever. In this disease there is always low blood pressure, and—

"The indication, in kind and amount, for stimulant drugs, can be derived from blood pressure estimations with almost mathematical exactness.

"With perforation and peritonitis there is an early and striking rise in the period of peritonæal irritation, exactly comparable to that occurring early during laparotomy, and equally certain to be followed by a rapid and profound depression."

Among the stimulants which raise blood pressure the first place is given to strychnin and digitalin. Camphor is of much less efficacy, in many cases inert. As already stated, the stimulating (pressure increasing) action of alcohol is denied. Large saline infusions given hypodermically were found to be without cardio-vascular stimulant effect, but in the hypotension caused by hemorrhage they may have some effect by mechanically increasing the circulating fluid.

Our space prevents us from doing anything like justice to this paper, which is full of interesting observations and valuable indications for treatment.

The remaining paper is by Dr. Martin B. Tinker, on The Value of Tuberculin in Surgical Diagnosis.

It is based on the results of 400 cases. The tuberculin used was made according to the original method of Koch.

It was found that doses of from one to three milligrams, gradually increased to nine milligrams, were harmless to both tuberculous and non-tuberculous subjects. The latter gave no reaction with six milligrams. A reaction with even nine milligrams is strongly presumptive, but not positive, evidence of tuberculosis. Dr. Tinker looks on the use of tuberculin as not only harmless but of high diagnostic value. He has found it of greatest aid in cases where the uncertainty lay between tuberculosis and hysterical, traumatic, or rheumatoid disease of the joints. In such cases an early diagnosis, while the disease is in a curable stage, is very important. In several cases of tuberculosis of the kidney the diagnosis was made by tuberculin, and subsequently confirmed by operation, when bacilli could not be detected in the urine. No case of tubercular adenitis failed to give the tuberculin test, while nine cases of Hodgkins' disease, and many cases of cysts and other tumours in the neck, all gave no reaction. cases of osteomyelitis out of twenty-five reacted. No cases of actinomycosis or of syphilis reacted to a moderate dose of tuberculin.

The author propounds an ingenious theory to explain the tuberculin reaction, and why it fails if the patient is already markedly febrile, and why it is given even by healthy subjects if the dose is excessive. For this, however, and for much other interesting matter which our space does not permit us to notice, we must refer our readers to the paper itself which will well repay perusal.

The Errors of Accommodation and Refraction of the Eye and their Treatment. A Handbook for Students. By Ernest Clarke, F.R.C.S. With 84 Illustrations and One Coloured Plate. London: Baillière, Tindall & Cox. 1903. Cr. 8vo. Pp. x + 225.

Or making many books there is no end, and much study of them is a weariness of the flesh, yet fresh books still appear in an unending succession, each claiming to fill a gap where no gap seems to exist.

Dr. Clarke, in his preface, tells us that he has tried to make his book, which is based on lectures delivered at the Central

London Ophthalmic Hospital and the Medical Graduates' College, essentially practical. He has, therefore, omitted all matter unnecessary for the busy practitioner or overburdened student.

Recognising, however, the importance of asthenopia in medical treatment, he has given the subject a prominent place throughout the book.

In places his definitions are too lax for accuracy, as at page 109, where, in defining astigmatism, he calls it "a condition in which rays of light, passing through the dioptic apparatus, do not focus at a single point." To one who knows the subject it is easy to fill in the deficiencies in this definition, but it is bewildering to a student.

We would also have preferred him, as an Englishman, to stick to the English formation of words, and not make use of such Americanisms as "hyperopic" and "symmetric" when he means hypermetropic and symmetrical.

On the whole, however, he has fulfilled the promise of his preface and has produced an admirable résume of the most practically important facts in connection with the subject. It is simple, concise, and lucid, and it may fairly take its place amongst the useful books of the year.

Husband's Forensic Medicine, Toxicology, and Public Health. Seventh Edition. Revised and Enlarged. By R. J. M. BUCHANAN, M.D., B.Ch. (Vict.), M.R.C.P. Lond., M.R.C.S. Eng., Assistant Lecturer on Forensic Medicine and Toxicology in the University of Liverpool; and E. W. HOPE, M.D., D.Sc., Professor of Public Health, University of Liverpool, Medical Officer of Health of the City and Port of Liverpool. Edinburgh: E. & S. Livingstone. 1904. 8vo. Pp. xvi + 724.

This work, which still bears Husband's name, has undergone a remarkable evolution in recent editions, and particularly in the seventh edition, which now lies before us.

In the section on Forensic Medicine, the chapter on bloodstains has been re-written, close attention being given to the biological tests by which different kinds of mammalian blood may be distinguished from each other. Our fellow-citizen, Dr. E. J. McWeeney, is quoted (at page 114) as an authority on "blood relationships" because of his paper in the ninth

volume of The Journal of State Medicine.

The section on Toxicology has been enriched by articles on putrefactive alkaloids, leucomains, and food-poisoning, which are entirely new and are published for the first time in the present edition. These important subjects are discussed briefly, but clearly. To food-poisoning (bromatotoxismus) a special chapter has been devoted.

The third section, on "Public Health," has evidently been carefully revised by Dr. Hope, whose official position as Medical Officer of Health for the City and Port of Liverpool justifies him in speaking with authority on all matters relating

to public health.

Remembering the purport of Dr. Hope's evidence in the Injunction Case of the Clonskeagh Isolation and Small-pox Hospital, heard last year in Dublin, we are not a little amused to read (within quotation marks, no doubt), at page 627—'There is no contagion so strong and sure as that of small-

pox—none that operates at so great a distance."

Furthermore, at page 658, the authors say:—"In view of the frequently demonstrated liability of small-pox hospitals to disseminate that disease to neighbouring communities, and in order to lessen the risk of such occurrence, the Board" [i.e., the Local Government Board for England] "require the following conditions to be complied with in the case of small-pox hospitals provided by means of loans sanctioned by them:—

"1st. The site must not have within a quarter of a mile of it either a hospital, whether for infectious diseases or not, or a workhouse, asylum, or any similar establishment, or a population of as many as 200 persons.

"2nd. The site must not have within half a mile of it a population of as many as 600 persons, whether in one or more

institutions, or in dwelling-houses.

"3rd. Even where the above conditions are fulfilled a hospital must not be used at one and the same time for the reception of eases of small-pox and of any other class of disease."

These three conditions are printed in italics to emphasise them, and the authors go on to say—"Some circumstances in connection with the isolation of cases of small-pox call for observation. Site.—The site of the hospital is an important matter. This should be away from dwellings, highways, public foot-paths, and places of public resort, and it should be altogether independent in its administration of the hospital for other forms of infectious diseases. These requirements make the selection of a site difficult, more especially as a large area of vacant land is necessary around it, approximately with a radius of 400 yards or upwards. It must be remembered also that means must be taken to prevent this land from being encroached upon by buildings or dwellings in the future."

This is all pretty strong and sounds unnecessary unless we believe that the small-pox virus is capable of being air borne. We suppose it was Dr. Hope who added the following paragraph to those we have quoted :-" It is unlikely that small-pox can be conveyed long distances, say, a quarter of a mile to a mile, by aërial convection, and most cases of recent years, originally supposed to have been so caused by hospitals, have, upon investigation, proved to be due to direct or indirect contact with infected persons or things" (page 660).

If this is Dr. Hope's deliberate opinion, why does he quote without questioning the regulations of the Local Government Board ? and why is he careful to state that, in reference to his own small-pox hospital at Fazakerley, Liverpool, "the administrative block is at some little distance from the wards, but the entire establishment is wholly independent of any other institution "?

Every one of the three conditions insisted on by the Local Government Board for England is violated in the Clonskeagh Isolation Hospital.

In the section on Meteorology, we notice that the old myth of the Gulf-Stream is retained in the description " a great shallow river in the ocean," to which the mildness of the climate of "Britain" is attributed solely. It is rather an exaggeration to say, as at page 591, that "it is almost always raining on the west coast of Ireland and Britain." The average annual rainfall in Dublin also is not 30, but 28, inches (page 592). Why is the ignorant spelling "syphon" for "siphon" adopted at pages 568 and 569? Alas! for the abolition of Greek as a compulsory subject in the educational training of the physician.

For the work at large and its setting we have nothing but

- praise.

Modern Bullet Wounds and Modern Treatment. By Major F. Smith, D.S.O., Royal Army Medical Corps. Pp. 99. London: J. & A. Churchill. 1903.

This little book, which forms part of the Alexander Essay for 1903, is written with special regard to long bones and joints, field appliances, and first-aid. It embodies the experiences gained in the treatment of these injuries in the recent war. The conclusions arrived at by the author are simply an endorsement of those of Mr. George Makins in his "Surgical Experiences in South Africa." The book is nicely written and readable, but adds nothing to what will be found in the chapter devoted to these subjects in the work above-referred to. The remarks at the end on first-aid we can strongly commend to the study of the authorities.

### The American Journal of Orthopædic Surgery.

We have received the first number of this Journal, which is to be published quarterly by the American Orthopædic Association. It is to replace the Transactions of the Association—Volume I. of the Journal being Volume XVI. of the Transactions. The present number contains, amongst others, some excellent papers on "The Correction of Deformity at the Hip, the Result of Disease;" "Subtrochanteric Osteotomy in Adults, Adolescents, and in Young Children;" "The Surgical Pathology of Genu Valgum and Genu Varum;" "The Occurrence of Painful Affections of the Feet among Trained Nurses;" and "The Importance of Supplementing Tissue Transplantation in the Treatment of Paralytic Talipes and by other Procedures Designed to Assure Stability."

An excellent feature of the Journal is an addendum of some 26 pages, including no less than 72 abstracts on various orthopædic subjects of interest, taken from British, Continental

and American journals. The departure of publishing the Transactions in the form of a quarterly journal will be welcomed if only for the reader's convenience.

We can recommend the Journal not only to the orthopædic specialist, but also to the general surgeon, who is frequently compelled to take charge of these interesting and often troublesome and difficult cases to treat.

The Refraction of the Eye and the Anomalies of the Ocular Muscles. By Kenneth Campbell, M.B., F.R.C.S. London: Baillière, Tindall & Cox. 1903. Demy 8vo. Pp. viii + 214, and 107 Illustrations.

The author, in his preface, says that he has endeavoured to carry out the principle laid down in the thesis of Professor Tait, that "true science is itself simple, and should be explained in as simple and definite language as possible."

We applaud the author's endeavour, but fear that the opprobrium of medical writing in general—viz., want of a literary gift and imperfect knowledge of the English language—to some extent prevents him from realising his idea!

"Parts of it are excellent," as the curate said of the bishop's egg; and for the most part his descriptions are intelligible, but in places his simple and definite language "becomes indefinite enough to puzzle any ordinary student." For instance, take the explanation of the diagram on page 178. Here both the drawing and the text combine to mystify. On the next page he asks the student to note the reflection of the flame falling on the front of the cornea of the squinting eye; when he really means the reflection of the flame formed by the anterior surface of the cornea.

Even in the appendix, where he gives the regulations for admission into the services, he tries to simplify the official regulations by expressing them in his own language: "The vision of each eye must be not less than  $\frac{6}{36}$  without glasses, provided that with his correction the vision of one eye can be brought up to  $\frac{6}{6}$  and  $\frac{6}{12}$  with the other." The latter part of this sentence is, of course, not English.

Nevertheless, to those requiring a practical book on the refraction of the eye, &c., the one before us will be found

most valuable, and the abundant illustrations serve to simplify the understanding of the text.

Elements of Surgical Diagnosis. By A. Pearce Gould, M.S. Lond., F.R.C.S. Eng.; Surgeon to the Middlesex Hospital; Member of the Council of the Royal College of Surgeons of England, and of the Examining Board for England; Member of the Senate of the University of London. Third Edition, Revised and Enlarged. Cassell & Co. 1903. Pp. 607.

On comparing the present edition with that published ten years ago it becomes at once evident that considerable changes and improvements have been effected in the revision of this little manual. New sections are added on the diagnosis of the intracranial complications of middle-ear diseases, and new chapters on the diagnosis of abdominal tumours, and of certain acute abdominal diseases, conditions which have sprung into such vast importance within recent years. As a manual for students in the wards its excellence could be increased by the inclusion of a short chapter on the chemical and microscopical examination of the secretions, excretions, and exudates.

We strongly recommend the careful study of this little manual to every student of surgery.

Anæsthesia in Dental Surgery. By Thomas D. Luke, M.B., F.R.C.S.E. London: Rebman, Limited. 1903.

The first thought likely to flash across the mind of one reviewing this work would be—whether there was need for it with such excellent manuals already in the field as Hewitt's and others; but a closer study of its scope and contents proves that it is sui generis and a success. The book is written in a less than technical vein, and yet is hardly what might be termed popular in style.

The author has proffered material which is comprehensive, readily grasped, pithy and up-to-date. There lies within these pages most, if not all, of what a dentist or dental anæsthetist need know of anæsthesia; the summing up of the relative advantages and disadvantages of the various

anæsthetics in use in dentistry is good, while we readily concur in nearly all the conclusions arrived at.

As we have already stated, the book pleases us well, and is to be recommended to the notice of all interested in the subject, whether students or qualified practitioners.

Essay on the Irregularities of the Teeth. By J. Sim Wallace, D.S., M.D., L.D.S., &c. London: Dental Manufacturing Co., Ltd. 1904.

Some time since we had occasion to review a brochure by the same author upon the causation of dental caries. A theory was then enunciated by him which appeared to be reasonable. In the present work hypotheses are here, there, and everywhere.

Irregularity dental is now so important an item in the daily practice of the dentist that any light brought to bear upon its causation and remedy will be eagerly grasped at by those whose province it is to remedy such defects, and hence a study of this book was looked forward to with some interest. Perhaps some little disappointment has been the result of such an inquiry, so eminently theoretical seems the whole matter it contains; the writer-may we with respect say soputs forth his own pet suggestions and ideas to explain many of the commoner forms of irregular mouths, and often with rather severe criticisms of the opinions of others. An all-pervading idea of the writer's seems to be, that the tongue according as it be small or ample-influences unfavourably or favourably the position and regularity of the various teeth. He asserts that abnormalities are not inherited—a contention which a very great number of dentists would hardly allow.

Insufficient mastication is cited again as a cause (with more correctness, we believe) leading, as it may, to lessened use, and, therefore, probable slight atrophy of the facial hard and soft parts.

At times, as has been stated, Mr. Wallace is rather severe upon the theories of others. Witness his caustic criticism on p. 65, re causation of superior protrusion.

The book is divided into seventeen chapters of some 150 pages, plus an introduction and appendices, and while some

useful advice, as to diet, &c.—e.g., pp. 107, 111—is given in places, on the whole its tenour to us appears rather dogmatic, and not generous, also failing always to convince.

The work is well turned out by the publishers, and is of

convenient size and excellent print.

Natural Physical Remedies: Light, Heat, Electricity and Exercise in the Treatment of Disease. By H. H. Hulbert, B.A., M.R.C.S., L.R.C.P. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. [No date.]

This book deals chiefly with the modern applications of electricity, heat, light, X-rays, &c. It contains a good deal of information, much of which is interesting; but it is crudely presented, and the reader must be prepared to "boil it down" for himself. The Dowsing treatment is freely advertised.

Zur Frage der Heitbarkeit des Carcinoms. Von Dr. R. Lomer, Hamburg (Sonderdruck aus "Zeitschrift für Geburtshülfe und Gynäkologie," Band L. Heft 2). Pp. 80.

Cases of cancer are not infrequently seen in which, after an incomplete removal, the growth does not recur—or, if it does relapse, after one or more secondary and still incomplete removals, it disappears.

"How is this possible? If we could answer this question precisely, then we should have made a great step towards

the solution of the cancer question."

In the first part of his paper Dr. Lomer quotes a large number of authorities in support of the statement that a further development of the growth does not necessarily take place from portions left behind in the operation, but that under certain circumstances pieces of carcinomatous tissue left behind can be disposed of by the body.

In the second part the author adduces evidence to show that fever exerts a very unfavourable influence on the growth of carcinomatous tissue. Phthisis appears to have an antagonistic influence on the growth of cancer. The occurrence of crysipelas, either spontaneous or by experimental inoculation, and other febrile conditions have all been seen

to retard or prevent the growth of cancerous tumours. This may be due not only to the elevated temperature but to the alteration of the blood; and in accordance with this severe hæmorrhages have also been seen to be followed by beneficial effects in cancerous subjects.

Williams and others have supposed that anything that depresses the vital forces, as advanced phthis or constitutional syphilis, tends to prevent the development of cancer, and Lomer suggests that a similar depression, produced acutely, as by a prolonged and serious operation, may have a similar effect.

In this connection it is interesting to notice that many substances which cause a profound change in the blood have been employed with more or less success against cancer. Arsenic, turpentine, cantharides, chlorate of potassium are among these bodies. Experiments are in progress with a hæmatolytic serum which appear to promise something. Since young persons so rarely suffer from carcinoma, it may be that in their epithelium some substance exists which hinders the abnormal growth of this tissue, so that from their epithelium a serum might be got which would check the irregular growth in cancerous subjects. Some experiments with such a serum are recorded, and the results were good.

In the treatment, then, of uterine cancer it is recommended to apply the hot iron freely to all parts which cannot be removed; to make warm applications to the part; to treat the patient with arsenic or potassium chlorate; to employ vaginal injections of the chlorate, and to employ fever-causing injections.

The author concludes this part of his work by quoting the following words of Petersen:—"In the present condition of our knowledge it is at least as reasonable to believe in the possibility of an anti-cell serum for carcinoma as in the possibility of an anti-parasite serum"—"Also suchen wir."

The third part gives a record of cases.

The following are a number of points which are under investigation by the author in conjunction with Dr. Pröscher:—

1. The action of epithelium serum and of human hæmatolytic serum on cancer.

2. The occurrence of leucocytosis in carcinoma, particularly whether this takes place independently of ulceration.

3. The reaction of carcinomatous patients to soluble

bacterial toxins (tuberculin, staphylotoxin).

4. The cause of the slight disposition of carcinomatous patients to contract infectious diseases, and whether this depends on a histogenetic, bactericidal, or antitoxic immunity.

- 5. Whether in the blood of carcinomatous subjects there circulate certain toxic substances which cause the cachexia (observations on isotoxins, hæmatolytic and agglutinating substances as contrasted with normal human blood).
- 6. The treatment of carcinoma with organic and inorganic blood poisons (potassium chlorate, arsenic, pyridin, phenylendiamin).

7. On the resistance outside the vessels of the red corpuscles of carcinomatous patients to different blood poisons.

This paper is written with much enthusiasm, and in a vigorous and highly readable style. It is, of course, largely theoretical, but contains much that is suggestive, and it must be looked on as a valuable contribution to cancer literature.

University of Pennsylvania. Contributions from the William Pepper Laboratory of Clinical Medicine (Reprints). No. 3. Philadelphia. 1902.

This volume contains twenty-two papers, reprinted from various journals, but all recording the results of work done in the William Pepper Laboratory. The papers deal with a very wide range of subjects, and are all of great interest. The collection evidences in the strongest way the great vitality of the Laboratory and the important part which it plays in the advancement of medical knowledge.

The earlier papers are on neurological subjects, and many of them are from the pen of Dr. William G. Spiller. The first records a case of cervical and bulbar tabes with autopsy. Such cases are rare, and records of the *post-mortem* appearances are rarer still.

The second paper, also by Dr. Spiller, gives an account of

a case of complete absence of the visual system in an adult. The patient reached the age of twenty-two years, but at the time of death presented the appearance of a child of twelve. He was an idiot, could not speak, and presented no signs of puberty. There were no eyeballs, optic nerves, chiasma or optic tracts. The optic foramina did not exist. From an examination of the brain the author draws the following conclusions:—

"1. The chief 'primary' optic centre is the external geniculate body.

"2. The pulvinar of the optic thalamus is also an im-

portant 'primary' optic centre.

"3. The anterior colliculus of the quadrigeminal body in man has an unimportant relation to vision.

"4. The hypothalamic body, the habenula, the internal geniculate body probably are not part of the visual system.

"5. The cortex of the calcarine fissure may contain nearly the normal number of cell bodies, even though the visual system may be undeveloped.

"6. The nerves to the ocular muscles and their nuclei may be developed, even though the visual system is absent.

"7. Congenital spastic paraplegia may be the result of deficient formation, as regards number or size, of the neurones of the central motor system, even though such a deficiency may be difficult to detect by the microscope."

In a case of fracture of the tenth thoracic vertebra, with complete compression of the spinal cord, Dr. Spiller found that tactile and painful sensation was lost up to a horizontal line passing through the umbilicus. He, therefore, confirms Head in placing the umbilicus between the ninth and tenth thoracic sensory areas. On microscopic examination it was found in this case that there were considerable morbid changes in the lumbar and sacral regions of the cord. During life the Babinski reflex and the knee-jerk were absent. From a study of the case it is concluded "that the Babinski reflex may be absent in cases of lesion of the lumbar and sacral regions of the cord, though the clinical symptoms may indicate merely that the cord is compressed above the lumbar region. The Babinski reflex in such cases may possibly be a valuable sign of disorganisation of the lumbar and sacral

regions. That, while loss of the patellar reflexes may occur from transverse lesions of the cord above the lumbar region, the cause of this loss in a certain number of cases is to be found in lesions of the area through which the reflex are passes."

Dr. Spiller also records an interesting case of primary degeneration of the pyramidal tracts, and two cases of partial internal hydrocephalus from closure of the internal interventricular passage; and in conjunction with Dr. C. K. Mills, a rare case of external spinal pachy-meningitis implicating

the entire ventral surface of the spinal dura mater.

In a long and important paper Drs. Spiller and Frazier propose the division of the sensory root of the trigeminus instead of extirpation of the Gasserian ganglion for the relief of tic douloureux, and give a report of one case so treated. The operation is comparatively easy and simple and much less dangerous than the removal of the ganglion. The paper is full of interesting and suggestive matter.

Passing over some other papers on neurological subjects we come to a series of works on metabolism. Dr. Edsall writes on creatinin excretion, and in a second paper examines the benzovl esters of the urine in diabetes mellitus, and the clinical significance of an excess of glycuronic acid. He has found glycuronic compounds present in excess in four out of eight cases of diabetes, five out of six cases of typhoid fever. in a number of cases of general sepsis, in severe tonsillitis, and in several other infectious conditions. He thinks that these compounds are evidence of an intoxication and of the efforts of the organism to overcome this intoxication by forming out of the poisonous substance some innocent compound which is eliminated.

Dr. Miller contributes a paper on the specific gravity of the urine and nitrogen elimination in pregnancy.

Drs. Frazier and Holloway give the results of an elaborate research in the post-operative changes in the blood.

Another blood-study, on the granular degeneration of the erythrocyte, is by Drs. Stengel, White and Pepper.

Among papers on miscellaneous subjects we find one on myositis fibrosa, by Dr. Biggs; on sarcoma of the large intestine, by Drs. Jopson and White; on carcinoma of the eyelids with secondary involvement of the eyeball, by Drs.

Posey and Shumway; on papilloma of the caruncle, by the same authors, and on the surgical treatment of sterility, due to obstruction of the epididymis, by Drs. Martin, Carnett, Levi and Pennington. This last paper, which is experimental as well as clinical, includes a valuable microscopical study of the human spermatozoa. The authors find that in sterile marriages the fault lies with the husband in at least from 10 to 15 per cent. of the cases, and probably in a still larger percentage; that though absence of motile spermatozoa is a proof of sterility, their presence does not necessarily demonstrate that the semen is fertile; that prolongation of motility is a better index of fertility than the mere fact of motility; that although the spermatozoa conform to a general type they present considerable differences even in the same individual; and that while passing through the epididymis they undergo important developmental changes.

"The commonest local cause of sterility in the male is obliterating bilateral epididymitis of urethral origin. Bilateral epididymitis is comparatively rare. Permanent obliteration of the tube of the epididymis is its exceptional rather than its usual termination, and is most effectually avoided by prolonged treatment. When the obliteration persists it is in the tail of the epididymis. Azoöspermia resulting from obliteration in the tail of the epididymis can be easily and safely overcome by forming an anastomosis between the head or body of the epididymis and the vas. Ejaculations following this anastomosis swarm with motile spermatozoa. Whether these be fertile, and whether the vasoepididymal anastomosis will persist, can be determined only

by prolonged observation."

The Lymphatics: General Anatomy of the Lymphatics. By G. Delamere. Special Study of the Lymphatics in Different Parts of the Body. By P. Poirier and B. Cunéo. Authorised English Edition. Translated and Edited by CECIL H. LEAF. With 117 Illustrations and Diagrams. Westminster: Archibald Constable & Co. 1903. Pp. 301.

This handsome volume is a section of the great treatise on Human Anatomy which is now appearing in France under

the editorship of P. Poirier and A. Charpy. It is divided into two parts: The first, by G. Delamere (whose correct name is, we believe, Delamare), is on the general anatomy of the lymphatic system; and the second, on the special arrangement of the lymphatic vessels and glands in the different parts of the body, is by Poirier and Cunéo. The work professes to be—and is what it professes—"not simply a general review, a work of compilation, but is a record of opinions which have been formed as a result of personal researches. It shows the state of science of to-day, and indicates the lines on which the work must be conducted in the future."

A new method of injecting the lymphatics has been largely employed in these researches, and is said to have great advantages over the older method of mercurial injection. This is known as the method of Gerota. In it the injection is made of Prussian blue dissolved or suspended in turpentine and ether. The fluid is injected by puncture. The results, if we may judge from the drawings, are very beautiful.

There are few subjects in general anatomy which have given rise to more discussion and difference of opinion than the origin of the lymphatic vessels, their relation to the blood vessels, and the structure of the lymphatic glands. On all these matters the work of Delamere gives us much information. It is shown that lymph cannot be looked on as the same as blood serum or plasma. It must not be looked on as "a simple product of filtration, but rather as a secretion, the genuine result of cellular activity." Its chemical constitution is different, its freezing point is lower, and many circumstances which alter the composition of one fluid leave the other unaffected.

As regards the origin of the lymphatics, the existence of open mouths either into juice canals or into the meshes of the connective tissues is altogether denied, and it is maintained that in the adult, as in the fœtus, the lymphatic capillaries terminate by absolutely closed culs-de-sac. A communication of open mouths with the serous cavities is also denied. The shape of these culs-de-sac is variable. They may be ampullary, club-shaped, conical, digitiform, or ring-shaped. They are lined by a continuous endothelium, through which, however, cellular migrations and osmotic exchanges

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readily take place, so that the lymphatics can filful their function as drains. The researches of Renaut would seem to show that they exert this function selectively, since he finds that they contain a fluid consisting only of water and crystalloids, and that it is only the lymphatics with valves which contain leucocytes and albuminoids.

An interesting account is given of the development of the lymphatics, which is compared by Ranvier with that of the glands. "The lymphatic system is, in his opinion, an immense gland which originates from the veins, into which it throws the product of its secretion—the lymph."

A good description is given of the different varieties of leucocytes which occur in the lymph, and of their staining and other properties. Although sometimes certain varieties of white cells are phagocytic to a certain microbe and not to others, "it cannot be supposed that as a general rule each type of leucocyte possesses a special chemiotaxis. Granted this fact, and granted that the same leucocyte, whether neutrophile or eosinophile, is attracted by the most different kinds of microbes, it may be seen that even for pure infections, the qualitative study of leucocytosis is of little use in aiding us in our clinical diagnosis."

In the second part of the work the special anatomy of the lymphatics is described, the position of the different glands, and the sources from which they draw their lymph, and the arrangement of the lymphatic vessels. The great practical importance of a knowledge of this part of anatomy is now universally recognised. Nowhere will a better guide to it be found than in this book.

The translation is apparently well done, the drawings are excellent, and the work is well brought out. We have, however, one serious fault to find—namely, the want of an index.

Nouvelles Recherches sur les Rapports Anatomiques des Neurones. Par le Dr. Hermann Joris. Bruxelles: Hayez. 1903. Pp. 126.

This able essay is published by the Belgian Royal Academy of Medicine, and has been awarded a medal of the value of 800 francs. The work is divided into three parts. The

first is historical, and is sub-divided into two chapters: of these the first is devoted to a discussion of the views that have been held on the morphology of the nerve cell. The theory of the diffuse nervous network held by Gerlach as the result of his method of staining with gold chloride; the more recent neuron theory of His, Cajal, and many other anatomists; the fibrillar theory, which goes back to 1869, when it was stated by Lionel Beale, and has again been brought forward by Apathy, Bethe and others: and, finally, some other theories, such as that of Frommann and Grandry, who maintain a transverse striation of the protoplasm and deny a fibrillar structure, the spongioplasm and conducting hyaloplasm of Leydig, Montgomery and Nansen, the trabecular structure of Van Gehuchten, the rods or granules of Van Lenhossek, the neurosomes of Held, and the intracellular canals of Holmgren and Adamkewicz, are all described in a series of sections.

The second chapter treats of the biology of the nerve cell, and in different sections its importance as a genetic centre, as a trophic centre, and as a functional centre is critically examined.

The second part of the essay is on microscopical technique, and describes the most important of the methods which have been employed for the study of the minute anatomy of the nervous elements.

The third part gives the personal researches of the author on the histology of the nerve cell. In four chapters he describes—(1) the external morphology of the neuron; (2) the histology or internal structure of the neuron, its chromatic substance, conducting fibrils, cellular prolongations, and axis cylinder; (3) the connections between the neurons in the nerve centres and in the peripheral ramifications; and (4) the direct anastomosis of nerve cells.

The following are the conclusions at which the author arrives:—In both vertebrates and invertebrates the nervous fibrils are independent anatomical elements. They form closed circuits, passing without break through the nerve cells, and forming loops or networks at the periphery. The fibrils, which thus traverse only the cell body, may run from a protoplasmic process into the axis cylinder process, or from one protoplasmic process into another. In the latter case a

fibril may not enter the cell body at all, but pass from one process to another round a bifurcation. In both axons and dendrons the fibrils are continuous, isolable and independent, and run more or less parallel to one another. The nervous fibrils are continuous in the centres, where they form extracellular networks. They are continuous also at the periphery. where a fibril can be followed separately into the peripheral networks and interlacements. The extracellular network in the grev matter and the peripheral plexus unite the neurons by continuity, but these connections are not, properly speaking, anastomoses. They resemble rather the intracellular threads by which the epidermic cells are as it were stitched together. The protoplasm of each neuron does not fuse with that of its neighbours, but the neurons are connected only by the fibrils, which after traversing one cell enter another. some parts of the nervous system, however, a true cellular anastomosis does exist.

These conclusions, so different from those founded on Golgi's method, and returning in many particulars to the old views of Beale and Max Schultze, tend to make us endorse the statement of the author—"En matière de science, la vérité n'est jamais que provisoire et sujette à varier;" and, while admitting the great merits of his essay to recognise the truth of the motto appended to it—"Ce n'est rien au prix de ce qui nous reste à connaître."

The essay is illustrated by seven beautifully executed folded plates, containing many microphotographs and

drawings, of which many are printed in colours.

A very copious bibliography is appended, arranged alphabetically, under the authors' names, giving references to 463 separate works.

A Pocket Dictionary of Hygiene. By C. T. KINGZETT, F.I.C., and D. HOMFRAY, B.Sc. Second Edition. London: Baillière, Tindall & Cox. 1904. Pp. 112.

A GREAT deal of useful and accurate information is gathered into a small compass, and by the dictionary arrangement and plenty of cross references any desired item can easily be found. As might be expected from the authors the second

edition is well up to date; and even if the "Sanitas" preparations receive a good deal of praise, it is only what they deserve. Some peculiarities of nomenclature may be noted. Phthisis is the heading under which Pulmonary Tuberculosis appears; yet when the reader looks out Protoplasm he is referred to Bioplasm. The rash in scarlatina is said to usually appear "on the third or fourth day;" this is certainly postdating. In the article on thermometers the freezing and boiling points on the three scales are given, but the normal temperature of the human body is not given. On page 16 there is a very misleading comparison drawn between the building up of bioplasm and phagocytosis.

Essays on Rural Hygiene. By George Vivian Poore, M.D., F.R.C.P.; Commander of the Dannebrog; Emeritus Professor of Medicine and Clinical Medicine, University College, London; Consulting Physician to University College Hospital, &c. Third Edition. London: New York, and Bombay: Longmans, Green & Co. 1903. 8vo. Pp. 426.

THERE is a delightful freshness and originality about Dr. Vivian Poore's writings. These characteristics are notably present in his charming "Essays on Rural Hygiene," which has reached a third edition within ten years.

The principles of sanitation which the author advocates are well expressed in the following paragraph from his preface:—

"It is evident that the elaborate methods of sanitation which are necessary in towns are too expensive and otherwise unsuited for the rural householder, who is dependent for his living upon the productions of the soil, and who must be taught to return all refuse matter to the soil, with a view to increase its fertility."

Tangible results of his primeval system of disposal of refuse are shown in the frontispiece of the volume. The picture represents a magnificent assortment of flowers, fruits, and vegetables—the produce of a garden of 1½ acres at Andover, which has been manured with the refuse of one hundred persons for some years. The excremental matter is laid in

a furrow ten or twelve feet in length, made in the ground with a spade. Directly it is deposited in the furrow, it is lightly covered and there is an end for ever of any offence or of any danger. The first crop taken off the land is always a succulent green crop of the cabbage tribe, and the plants are dibbled in on the third day after the deposit. No other crops except cabbages seem to flourish in the fresh material, but the cabbages may be followed by potatoes, these by celery (planted between the rows), the celery by peas or beans, and these again by parsnips or carrots, without any fresh manuring, and with a most abundant yield. There is no doubt that this excremental refuse confers a fertility upon the soil which is not exhausted for years. Not only vegetables, but all the ordinary garden fruits are produced in high perfection. The garden, in which Dr. Poore has been experimenting since 1882, is now well stocked with fruit trees of all kinds. The sales of vegetables and fruits vielded £91 in 1900, and nearly £90 in 1901. Late frosts in 1902 destroyed the fruit crop and caused the receipts to fall to £58. No inconsiderable part of this garden of 11 acre is given up to flower borders, which give no pecuniary return.

Dr. Poore's book is full of useful hints on sanitation. To give one example—he writes (at page 335)—" In times of infective disease, the washing copper, intelligently used, is the best antiseptic, and the cheapest, because in this way the first stage of the laundry work is accomplished, and there is no bill for poisonous chemicals. Infected clothing should not be mixed with salts of mercury or (with) carbolic acid, because the albuminous matter (blood, &c.) is thereby coagulated, and the proper cleansing of the clothes in the laundry is interfered with. Neither should linen be plunged into boiling water for the same reason, but, as advised, it should be allowed to soak for some hours in cold water and soda, whereby the albuminous stains are dissolved, and then be gradually boiled."

The reader will gather from what has gone before that our author is original in his views on sanitation. This he frankly admits in the opening paragraph of the introductory chapter. He "will attempt to show that many of the hygienic arrangements which have been in vogue for some years are largely based upon erroneous principles; and are, therefore, bad from

many points of view, scientific, political, moral, economic, and

hygienic."

Dr. Poore is no advocate for cremation. In a chapter on "Burial," he sums up in favour of scientific burial as follows:—
"As compared with cremation, inhumation is cheaper, simpler, and quicker. It is productive and not destructive, it is indirectly a cause of freshening the air instead of fouling it, and provides a lovely spot for the enjoyment of the living." Perhaps, we may not go so far with him as all this, but he makes a first-rate case for burial. The conditions he lays down are:—
(1) That the body shall be placed in the "living earth" and as near the surface as is practicable; (2) that ground used for burial must be made to produce, and the planting of a tree or a shrub over the deceased should be the final act of the funereal rite; and lastly (3) that coffins should be used merely for the transport of the body to the grave, being as a final act withdrawn.

The work closes with a graphic account of the reclamation of the sand-wastes of Gascony and the story of Brémontier. That great French engineer planted those sand-dunes with the *Pinus maritima* in the year 1789, and so created the valuable pine-forests of the Landes and the Gironde—winning for France, by his skill and foresight, a productive tract which extends to hundreds of thousands of acres.

The Guide to South Africa. For the use of Tourists, Sportsmen, Invalids, and Settlers. With Coloured Maps, Plans and Diagrams. Edited annually by A. Samler Brown and G. Gordon Brown, for the Union-Castle Mail Steamship Company, Ltd., 3 and 4 Fenchurch-street, London, E.C. (1903-1904 Edition.) Eleventh Edition. London: Sampson Low, Marston & Co. Cape Town, Port Elizabeth, and Johannesburg: J. C. Juta & Co. 1904. 8vo. Pp. 474.

We have so often drawn attention to the features of this admirable work that nothing more is needed than to chronicle the publication of the eleventh yearly edition of "Browns' Guide to South Africa."

To show how well the work has been brought up to date

we quote the last paragraph of the section devoted to the "History of the Transvaal" (page 287):—

"The past year has been a peaceful period of reconstruction, marked by a vast increase in trade. The mining industry, although advancing steadily from month to month, has been greatly hampered by the want of native labour, and the output of the mines is still for below what it was before the war. This question of native labour is the burning one of the hour, and is dealt with at some length elsewhere."

The Native Labour Question has been prominent in South Africa since the abolition of slavery in 1834. A study of the ably written article on the subject, to be found at pages 135 to 140B of the "Guide," will interest and instruct.

The book costs only half-a-crown, and should be in the hands of everyone interested—and who of us is not?—in the future of South Africa.

Diseases of Women. By A. L. Galabin, M.A., M.D., F.R.C.P.; late Fellow of Trinity College, Cambridge; Consulting Obstetrical Physician to Guy's Hospital; late President of the Obstetrical Society of London, &c., &c. Sixth Edition, much enlarged. With 284 Illustrations. London:

J. & A. Churchill. 1903. Pp. viii and 695.

WE are very glad to be able to welcome a new edition of Dr. Galabin's work on Gynæcology. Although his present book is not so well known as his Manual of Midwifery, it still has reached a very considerable popularity, as is shown by the fact that it has reached its sixth edition. In the present edition the book has been greatly enlarged—"to twice its former size." Additional chapters have been added, as well as 149 new figures, including twenty-three micro-photographs.

Amongst the new sections we specially notice one on atmocausis. The boiler originally devised by Sneguirew is figured, and also the delivery tube of Pincus. It would have been, perhaps, better to have also shown a drawing of Pincus' boiler, as the original apparatus of Sneguirew is not now used. Dr. Galabin states that it is better to employ an anæsthetic during the performance of atmocausis, but we understand

that this is contrary both to Pincus' advice and to the usual practice. He also states that the "manipulation (sic) for protecting the cervix and isthmus appears to be defective," and that the use of a vulcanite canula, tightly applied to the dilated cervix, is preferable. We do not know whether Dr. Galabin has used the fibre cervix protector of Pincus, but it appears that he has not done so, as he apparently considers that the escape of steam from the cervix is the rule, whereas such an occurrence should never take place, and when it does, is an indication for the immediate shutting off of steam.

Dr. Galabin figures a very large number of pessaries which many gynæcologists would consider obsolete. It may be well for the student to know that such an instrument as Zwancke's pessary existed; but whether it is advisable to

suggest to him its use is another matter.

Many of the new illustrations are of a very high order of merit, and in particular we may draw attention to the drawings of pathological conditions reproduced from Roberts' book on Gynæcological Pathology. Some of the original drawings, on the other hand, are not good. Particularly is this the case in those which illustrate the introduction of a Hodge pessary, as these all possess one bad and another fatal fault. The bad fault is to be found in the very incorrect anatomical relations, inasmuch as what may be termed the standard fault of English works on gynæcology and midwifery is perpetuated. We refer, of course, to the relation of the buttock to the sacrum. We wonder when English artists will learn that the curve of the sacrum and the curve of the buttock are not concentric. The fatal fault is to be found in the fact that the drawings show the introduction of a Hodge pessary with the uterus still in a position of retroversion. It is true that during the process of introduction of the pessary the uterus, apparently, gracefully rises of its own volition into a position approximating to the normal, but inasmuch as there is some doubt as to whether this process would occur in corpore vili, it is, perhaps, not well to lead the student to believe that it will. We have always acted under the belief that it was imperative to replace a retroverted uterus before introducing a Hodge possary. The presence of this mistake in the drawings is all the more curious inasmuch as the writer distinctly states

that before the pessary is inserted the uterus should be replaced, and that he draws special attention to the inclusion of these new drawings in his preface.

Personally, we do not consider the arrangement adopted by the writer to be a good one, but he will, on the other hand, find many men to approve it. Much uterine, tubal, and intrapelvic disease is secondary to pathological conditions of the vulva and vagina, whereas the reverse sequence is extremely rare. For this reason we consider that in systematically discussing gynæcological diseases it is a mistake to end the book with diseases of the vagina, vulva, and bladder.

Dr. Galabin's book is in many respects an excellent one. We think, however, that the author would have been better advised if at the same time that he introduced many additions and improvements he had rigorously expunged much that is obsolete and unnecessary. The book suffers from its length, while, at the same time, it contains much which might with advantage have been jettisoned.

Manual of Midwifery: for the use of Students and Practitioners. By W. E. Fothergill, M.A., B.Sc., M.D.; Lecturer in Obstetrics, The Owens College, Manchester, &c., &c. Third Edition. With a double Coloured Plate and 86 Illustrations in the Text. Edinburgh: W. F. Clay. 1903. Pp. xviii + 506.

WE reviewed the second edition of this very interesting manual of midwifery at some length, and as the alterations in, and additions to, it during the preparation of the third edition are not many, we do not know that we have much reason to alter the opinions then expressed. Of the criticisms then made, one alone has apparently produced a modification in the present edition, and Dr. Fothergill has consented to describe the treatment adopted in ante-partum hamorrhages in the Dublin Maternity Hospitals. We fear, however, that the knowledge that the Dublin treatment does not produce the effect that English writers have assigned to it has not brought much conviction to his mind, which, so far as the treatment of accidental hamorrhage is concerned, is, we fear,

no clearer than when he prepared the second edition of his He no longer writes that as soon as accidental hæmorrhage is recognised the membranes should be ruptured, but says instead that "if the classical treatment is chosen, the membranes should be ruptured," and adds that if the hæmorrhage continues, dilatation must follow, then internal version and extraction, and then—is it any wonder—the treatment proper to post-partum hæmorrhage. In the midst of much uncertainty, there is however, one definite direction—" where there is little or no dilatation of the cervix, abdominal section is the proper treatment, and would save many lives if done promptly. We trust Dr. Fothergill will forgive our criticisms. To make some little amends we shall follow them by a suggestion. Will Dr. Fothergill during the course of one evening put all preconceived ideas regarding the correct treatment of placenta prævia and accidental hæmorrhage out of his mind, and will he devote the time thus gained to the tabulation—first, of the statistics of the results of the treatment of these conditions advocated in Edinburgh and London: and, secondly, to a tabulation of the statistics of the Dublin treatment. Let him then compare his tables, and we incline to the belief that in the preparation of his fourth edition he will be able to write clearly and definitely, and give reasons for the faith that is in him

As we said before, Dr. Fothergill's book is a most instructive and readable manual of Edinburgh treatment, and one which will well repay an attentive perusal.

The book before us consists of three parts. Part I. deals with methods of diagnosis. Part II. deals with "lines of diagnosis," and consists of numbered paragraphs "in which the more

Essentials of Pelvic Diagnosis: with Illustrative Cases. By E. Stanmore Bishop, F.R.C.S., England; Hon. Surgeon, Ancoats Hospital, Manchester; Vice-President, British Gynæcological Society, London, &c. And an Appendix on Examination of Blood, &c., by Charles F. Welland, M.D. (London), M.R.C.P.; Hon. Physician, Ancoats Hospital, Manchester, &c. Bristol: John Wright & Co. 1903. 8vo. Pp. 297.

broadly marked and more general dividing symptoms are given in italics, and the whole in considerable detail." We do not quite know to what the word "whole" applies, or why italics should be contrasted with detail. Part III. consists of diagnostic tables, "in which a more comprehensive view may be taken of the entire class, group, or section of pathological conditions to which the case belongs." An appendix is added, in which the methods of examination of the blood are given, as well as the various methods of detecting the presence of tubercular (sic) bacilli, and gonococci.

As we understand the preface, the book is an attempt to make more easy the mental process of deduction from effects to cause, and from symptoms to disease. We doubt the value of such attempts in general, and of this attempt in particular. The number of different clinical pictures which can be presented by the large number of pathological conditions with which we are at present acquainted is too great to enable each to be portrayed, and for a similar reason its retention on the mind is impossible. Even supposing that such attempts were proved to be of value, we fear that the book before us would still fail in its object. The appendix is useful and is nicely illustrated.

It is scarcely needful to do more than notice the appearance of the fourth edition of so well and favourably known a Pathological Text-Book as that of Professor Stengel. We have more than once strongly recommended it, more especially to students, and to those practitioners who desire to keep their clinical work abreast of pathological practice.

The present revised and enlarged edition deserves, however, a special note of commendation since, though the previous revised edition appeared so recently as 1900, it has been very thoroughly and judiciously brought up to date. Naturally, its new material is mostly evidenced in the part dealing with general pathology—where, amid much that is new, we notice

A Text-Book of Pathology. By Alfred Stengel, M.D.; Professor of Clinical Medicine in the University of Pennsylvania, &c. Fourth Edition. Thoroughly Revised. W. B. Saunders & Co. 1903.

a clearly and carefully written account of Ehrlich's Theory of Immunity. Another distinctive addition is a chapter dealing with pathological methods—an addition which adds much to the book's value as a student's text-book.

Essentially a student's and practitioner's book, in which clinical pathology is steadily kept in view, we think that—despite its many competitors—this fulfils, perhaps more adequately and easily than any other, the functions of a Pathological Text-Book.

A Short Practice of Gynæcology. By Henry Jellett, M.D., F.R.C.P.I., &c.; Ex-Assistant Master, Rotunda Hospital; Examiner in Midwifery and Gynæcology, Royal University of Ireland, &c. Second Edition. Revised and Enlarged. London: J. & A. Churchill. 1903.

WE cordially welcome this second, greatly altered, enlarged, and, we think, improved edition of Dr. Jellett's Gynæcology. Popular as was the first edition—not only among students but among practitioners—we have no doubt whatever that in its altered form it will prove still more acceptable. Dr. Jellett is indeed to be congratulated upon having already done much to redeem the Dublin School of Obstetrics and Gynæcology from the reproach of silence in that field of medicine for which its clinical teaching has long been famed, and for which its special institutions afford such unrivalled schools of experience.

A first glance at the book before us revealed what we still regard as a peculiarly meritorious feature—the abundance and excellence of its illustrations. Not only are they so executed as to give pleasure to the eye, but they are so carefully selected as to be of invaluable service from an educational point of view. Well-known works—those, e.g., of Kelly, Cullen, Roberts, and others—are some of the sources, but, what is more important, we have also a large number of quite original drawings which give the book a distinct note of individuality. Specially noteworthy are the original sketches designed to assist the reader in understanding the often complicated operative technique. In a very few cases we would have preferred other sources than those selected.

Thus the diagrams from Wyder, which illustrate endometritis might, we think, be easily improved on; and Fig. 47, supposed to represent interstitial endometritis, appears to us to show rather one result of such—viz., atrophy of the endometrium.

The teaching of the book is, as Dr. Jellett states, essentially that of the Dublin School-broad and eclectic; and, we have no doubt wisely, it is here inculcated tersely and dogmatically. A "Short Practice" has no right and no need to deal in doubts or confuse with refinements. The result is that the book yields the more readily what is wanted from itprecise directions as to how to act under various pathological conditions. Amid the plethora of works on Gynecology it would be difficult to name one which teaches less ambiguously. Before concluding a brief notice, we would wish to note—since it is the function of a critic to criticise—a few points upon which we would like to find the teaching somewhat modified. Dealing with the subject of menstruation, the author, quoting and following Mr. Bland Sutton, teaches that during the menstrual period there is degeneration and shedding of the superficial epithelium with portions of the stroma and of the glandular epithelium. This is certainly not justified by the more recent researches mostly made through the aid of menstrual curettings and uterine extirpations, which seem amply to sustain Gebhard's contention that "as a matter of fact no destruction of mucosa occurs at any time during menstruation." or during the succeeding period.

We should have preferred to find some definite mention of ovarian teratomata which present so marked a clinical contrast to the genetically related ovarian dermoids. The latter are one might almost say invariably-innocent, the former malignant, neoplasms.

Finally, we must congratulate both author and publisher on having shared in producing what is distinctly the most practically useful gynecological guide with which we are acquainted.

#### PART III. MEDICAL MISCELLANY.

Reports, Transactions, and Scientific Intelligence.

#### ROYAL ACADEMY OF MEDICINE IN IRELAND.

President—SIR THORNLEY STOKER, M.D., F.R.C.S.I. General Secretary—John B. Story, M.B., F.R.C.S.I.

#### SECTION OF PATHOLOGY.

President—Henry C. Earl, M.D., F.R.C.P.I. Secretary—Arthur H. White, F.R.C.S.I.

Friday, January 15, 1904.

The President in the Chair.

Horse-shoe Kidneys.

THE PRESIDENT and Dr. TRAVERS SMITH showed tuberculous suprarenal bodies and a horse-shoe kidney from a case of Addison's disease. The former also exhibited a second horse-shoe kidney.

PROFESSOR McWeeney said out of many hundreds of autopsies which he had made he found but one horse-shoe kidney, which was situated much lower down than usual; in fact, the connecting isthmus lay over the sacro-iliac synchondrosis.

#### Deformity of Liver.

The President showed a liver with deformity, probably produced by tight lacing. A portion of the right lobe close to the right side of the gall-bladder was turned right over so as to come in contact with the upper surface of the liver.

#### Paraffin Method of Embedding.

Professor McWeeney showed an adaptation of the paraffin method of embedding tissues suitable for class purposes. The sections were cut in chains, floated off in convenient lengths as usual, and taken up on thin sheets of mica, to which they were caused to adhere by capillary attraction. The mica sheets were cut up, and the divisions, each bearing a section, given out to the

class. After removal of the paraffin as usual, the students stained and mounted the sections, which adhered throughout to the mica, and were mounted in balsam along with it. The exhibitor owed his acquaintance with this useful method to his friend Professor Coffey, who had acquired it in Held's laboratory.

#### Ringworm.

Professor McWeeney showed sections of ringworm hairs prepared by the paraffin method, and adapted by the mica method for distribution to a class. They showed the characters of the several forms of ringworm, especially the microsporon, and their relation to the hair shaft and root sheath. The microsporon spores in the Irish cases he had studied gave notably larger measurements than those usually recorded—4 to 6 mikra, instead of 2 to 3 mikra as generally given. He also showed young microsporon plants grown from single spores on "French proof agar," as well as in epidermic scales. The acladium form of branching and ectospore formation were well seen in the hanging drop cultures. For staining, he had found Heidenhain's iron-hematoxylene after formol-vapour fixation most useful. The nuclei of the young mycelium were well seen under high powers. He had it in contemplation to undertake a comparative study of Irish skin-fungi by the methods he now outlined—viz., isolation of individual spores and culture on French proof agar.

#### Endometritis.

Dr. Neville exhibited photographs made by Dr. Wigham of various varieties of endometritis.

#### Cancer of Ovary.

Dr. Neville showed macroscopic and microscopic sections of cancer of the ovary.

The Section then adjourned.

#### SECTION OF ANATOMY AND PHYSIOLOGY.

President—Edward H. Taylor, M.D., F.R.C.S.I. Secretary—William Taylor, M.B., F.R.C.S.I.

Friday, January 29, 1904.

THE PRESIDENT in the Chair.

The Anatomy of the Pelvic Fascia, with special reference to its Surgical Importance.

Dr. R. A. Stoney read a paper on this subject. He described a new

method of demonstrating the connections of the visceral pelvic fascia, by hardening the subject in formalin, and then, having made a mesial section of the pelvis, dissected the prostate and bladder out of their fascial envelopes. By means of specimens dissected in this way, and drawings and diagrams made from them, he showed that the visceral layer of pelvic fascia, instead of dividing into three layers, as usually described, really gives off three complete sheaths, two in a downward direction surrounding the prostate and rectum, and one in an upward direction surrounding the bladder; and that each of these is complete in itself, and in no place does one layer of fascia enter into the formation of more than one of these three sheaths. He also pointed out that the visceral layer of pelvic fascia meets the urogenital apparatus at the vesico-prostatic junction, and the alimentary canal at the junction of the rectum and anal canal.

SIR THOMAS MYLES, the President, Professor Fraser, and Professor Dixon spoke.

#### Pawlow's Gastric Fistula Operation.

Dr. Harold Pringle exhibited a dog on which he had performed Pawlow's "gastric fistula" operation. The subject of the operation is to produce a stomach-pouch which is made to open on the surface, while the remainder of the stomach is left to perform its digestive function as usual. The pouch is formed in such a manner as to retain its nervous connections intact. Some lantern slides were shown illustrating the operation, and others giving the results of experiments, which showed that the juice secreted by the stomach-pouch varied in amount and rate of secretion, corresponding with the results already published by Pawlow.

The President and Professor Thompson spoke.

#### Making of Blood Films.

Dr. Henry M. Johnston gave a demonstration on the making of blood films by a new method. He also showed specimens of films stained and unstained. His apparatus is exceedingly simple, and is already in the hands of a firm of instrument makers. A complete account of this apparatus and method will shortly be published.

The Section then adjourned.

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#### THE NATURAL MINERAL WATERS OF



CÉLESTINS. For Diseases of the Kidneys, Gravel. Gout, Rheumatism, Diabetes, &c.

GRANDE-GRILLE. For Diseases of the Liver and Biliary Organs, &c.

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2 or 3 Pastilles after each meal facilitate digestion.

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For instantaneously producing an effervescing alkaline water.

CAUTION. - Each bottle from the STATE SPRINGS bears a neck label, with

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INGRAM & ROYLE, Ltd.,

26 UPPER THAMES STREET, LONDON, E.C. And at LIVERPOOL and BRISTOL.

Samples and Pamphlets free to Members of the Medical Profession on Application.

#### SECTION OF OBSTETRICS.

President—Alfred J. Smith, M.B., F.R.C.S.I. Secretary—T. Henry Wilson, F.R.C.P.I.

Friday, February 5, 1904.

The President in the Chair.

#### Exhibits.

The President showed a uterus removed by panhysterectomy containing a large senile polypus.

Dr. E. H. Tweedy showed two derinoids, one cancerous ovary removed by abdominal section.

#### Report of the Rotunda Hospital.

The adjourned discussion on Dr. Purefoy's Report of the Rotunda Hospital for the year 1902-03 took place. Drs. Tweedy, Jellett, Wilson, FitzGibbon, FitzGerald, and the President spoke, and Dr. Purefoy replied.

The Section then adjourned.

#### THE MEDICAL BOOKS OF A YEAR-1902-1903.

THE "Medical Library and Historical Journal" for October, 1903, gives a "practically complete record of all medical books (exclusive of serial publications of all kinds, including transactions, year books, government reports, periodicals, &c., and graduating theses) published during the year" between October 1, 1902, and October 1, 1903. From these figures it appears that America is answerable for the production of 367 new books; Germany follows with 354; then come France, 288; England, 250; and miscellaneous, 25. The average price per volume was \$1.92. A consideration of the data gathered leads the "Journal" to remark that America leads the world in medical book production, and that half the medical books published are in the English language. Moreover, the average price of books published in English is \$2.64 (America), and \$2.25 (England), as against \$1.46 (Germany) and \$1.39 (France). French and German books are, however, not usually bound, which would to some extent, at least, account for the difference.—The Medical Book News, January, 1904,

#### CORK MEDICAL AND SURGICAL SOCIETY.

President—J. Cotter, M.D., F.R.C.S.I. Secretary—D. J. O'CONNOR, M.A., M.D.. R.U.I.

Wednesday, January 27, 1904.

The President in the Chair.

Intestinal Perforation cured by Operation.

The President read notes of a case of perforation of the intestine, successfully treated by operation. The patient was a girl, aged 12, suffering from tuberculous peritonitis. On admission to hospital she was greatly emaciated, and suffered from extreme abdominal distension. The day after admission the abdomen was tapped, and a large quantity of pus escaped. Next day the abdomen was opened, and the peritoneal cavity was found full of pus, having a feecal odour, while feeces were seen to be escaping from a small aperture in the transverse colon. The peritoneum was studded all over with tubercles. The aperture in the colon was sutured, and the cavity closed. Healing was slow, owing to the damaged condition of the peritoneum and the emaciated condition of the patient, but was ultimately complete, and the patient's weight increased in nine months from 4 stones to 7 stones 2 lbs.

#### Tuberculin in Pulmonary Tuberculosis.

Dr. P. T. O'Sullivan read notes of a case of pulmonary tuberculosis treated by tuberculin. The patient was a young woman, aged 21. The first two injections had no effect, but the reaction to a third injection was very marked, the temperature rising to 106.4° and all the symptoms being aggravated. Only the greatest watchfulness saved the patient's life at this stage. On the other hand the effect of the injection was to cause the entire disappearance of tubercle bacilli from the sputum. No permanent advantage followed the treatment, which, even with the improved serum now being used, is of very doubtful benefit.

#### Epithelioma Auris.

Dr. Corby showed an external ear which he had removed from a man, aged 60, for epithelioma.



ESTABLISHED NEARLY A CENTURY.

#### HOPKINSON'S

## LIQ. COLCHICINÆ SALICYLATIS.

Lumbago — GOUT — Rheumatism.

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Recommended in all Gouty and Chronic Rheumatic Affections in place of Colchicum on account of the diminished tendency to cause gastric and intestinal irritation, while the salicylic element also has a share in the results affected.

"From Personal Observation we can testify to the truth of these statements. The Liquor affords a very satisfactory means for the administration of the active principle of Colchicum in Suitable Cases.—Edinburgh Medical Journal.

It is impossible to get the same results with Colchicum Wine and Salicylic Acid.

Sold in 1-lb., ½-lb., ¼-lb. and 2-oz. Bottles. Price 16/-, 8/6, 4/6 and 2/6 each.

#### BAISS BROTHERS & STEVENSON,

Limited,

(Contractors to H.M. and various Foreign Governments).

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#### HOPKINSON'S

#### LIQ: COLCHICINÆ SALICYLATIS

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Gives Immediate Relief in all Cases of RHEUMATOID ARTHRITIS, CHRONIC RHEUMATISM,
GOUT and LUMBAGO.

Each fluid drachm contains  $\frac{1}{32}$  grain of Salicylate of Colchicine.

Hopkinson's Liquor Colchicinæ Salicylatis (Baiss Brothers and Stevenson, Ltd., 4, Jewry Street, London, E.C.)—For the treatment of that elusive condition called gout no drug is so uniformly successful as colchicum. Every practitioner knows that success is not invariable, and, we think, for reasons not so obscure as may be imagined. In the first place the corm, or seeds, does not contain a constant proportion of alkaloid, and the method of extraction is not always equally efficient. No doubt standardisation will improve matters in the future, but we think the best means of securing the proper action of the drug is to administer the active principle—the alkaloidcolchicine. Hopkinson's Liquor Colchicine Salicyl contains as of a grain of the salicylate of colchicine in a drachm. This is not a mixture of salicylic acid with the alkaloid, but a definite chemical compound GIVING RESULTS MUCH MORE CERTAIN THAN THOSE OF ANY PREPARATIONS OF COLCHICUM. FOR gout, chronic rheumatism, and rheumatoid arthritis it is a valuable acquisition, especially as it does not interfere with the action of the kidneys and liver, and does not produce any depressing effect. The liquor is a convenient and elegant preparation. "Medical Review."

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#### DOSE.—A TEASPOONFUL DILUTED, TWICE A DAY BETWEEN MEALS.

PRESCRIBE-Liquor Colchicinæ Salicyl (Hopkinson's).

#### TESTIMONIALS.

Eastwood, April 29th, 1893.

Dear Sirs,—I have now prescribed your Liquor Colchicinæ Salicyl for several months with marked effect in every case. Before it was brought under my notice in the Lancet. I never prescribed the ordinary remedies with any confidence. Your specialité, however, gives me the utmost satisfaction, and I can confidently recommend it to my brother practitioners. It has no depressing effect on the heart.

1 am, dear Sirs, yours faithfully,

--- , M.R.C.S., Eng.

Pleasley, Mansfield, May 18th, 1893.

Gentlemen,—I have much pleasure in testifying to the great benefit I have experienced from the use of your Liquor Colchicinæ Salicyl in my own case for lumbago. During the 18 months I have used it (for three separate attacks) it has not failed me once. I have always experienced relief within half-an-hour of the time of taking the first dose, and three or four doses have invariably succeeded in subduing the attack, and that without causing any unpleasant effect whatever, or even necessitating confinement indoors. I regard it as a valuable remedy for this and similar complaints. I shall take care to have it by me for personal use, and shall prescribe it to my patients.

Yours faithfully.

—— ——, M.B., C.M. (Univ. Aberd.)

GREAT GRIMSBY.

Dr. Smith would be much obliged if Messrs. Hopkinson & Co. will send him, for his own use, another bottle of Liquor Colchicinæ Salicyl. He has derived great benefit from it.

LONDON, W., May 15th, 1893.

DEAR SIRS,—I have found your Liquor Colchicinæ Salicyl of great value in my own case. I was soon quite relieved from pain, after having been ill for a long time with rheumatic gout. I have prescribed and recommended it to a great many people since, and have heard good results in every case.

Yours truly,

--- ---, F.R.C.S., Esg.

#### Extract from the "BRITISH MEDICAL JOURNAL."

"A preparation which is said to be very successful in the treatment of Chronic Rheumatism, Gout, and Lumbago, is prepared under the name of **Liquor Colchicinæ Salicyl** (Hopkinson); 60 minims diluted contain  $\frac{1}{32}$  of a grain of Salicylate of Colchicine.

OLDFIELD, BATH. 22nd Dec., 1897.

I have chosen a good opportunity for a trial of your Liquor Colchicinæ Salicyl. The beneficial effect was almost instant and yet was enduring. There was no nausea.

PLYMOUTH, 15th Jan., 1902.

Liquer Colchicinæ Salicylatis has recently given very good results in a troublesome case of gout, which had been under the usual treatment for some weeks. It has answered admirably in my hands, I shall always use it.

London, 26th May, 1902.

Thanks for Liquor Colchiniæ. I have taken two doses and can now walk properly, which I have not been able to do for about a month.

#### Mist. Bismuthi Aromat. (BAISS)

THIS valuable remedy has been much appreciated by the Medical Profession, for the past 32 years. It is useful for Dyspepsia, Gastric Distress, Impaired Digestive Powers, and Gastrodynia. It is an elegant compound, very palatable, retained by the most enfechled patient, and has no precipitate. The component parts are on every label—it is no secret formula. Each teaspoonful contains  $1\frac{1}{2}$  minims Acid Hydrocyanic B.P.,  $\frac{1}{12}$  grain Morphia, 6 minims Tinet. Nucis Vom. with Bismuth, in its most efficacious form and Chloroform.

#### Dose. One fluid drachm.

Sold in 1 lb. bottles 4/-, 2 lb. bottles 7/9, 4 lb. bottles 15/- each.

PRESCRIBE-Mist. Bismuthi Aromat. (Baiss.)

#### Mist. Bismuthi Aromat & Pepsin.

#### (BAISS)

Is identical with above preparation, with the addition of 2 grains Pure Pepsin Porci in each fluid drachm.

#### Dose.-One fluid drachm.

Sold in 1 lb. bottles 4/6, 2 lb. bottles 8/6, 4 lb. bottles 16/- each.

Extract from the "Practitioner," July, 1903.

#### "The Treatment of Gout in its various forms,"

By A.-P.-L., M.D., BSc., F.R.C.P., etc.

"As regards the use of lithium-salts in the treatment of gout, my opinion is that they are not so useful as the potassium- and sodium-salts. The lithium-salts have not the same inhibiting effect on the conversion of gelatinous sodium biurate into the crystalline form as the potassium-salts have, while at the same time they have no better solvent effect on gouty deposits. The great objection, however, to the use of the lithium-salts is their greater toxicity and depressing action on the heart as compared with the potassium-salts. They consequently have to be given in such small doses that I am very doubtful as to whether in such doses they possess any remedial effect at all. On the other hand, I constantly meet with patients suffering from cardiac depression as the result of the excessive and continued consumption of lithia-tablets, which are so persistently, so speciously, and so wrongly vaunted as curative of gout."

#### SANITARY AND METEOROLOGICAL NOTES.

Compiled by Sir John Moore, B.A., M.D., Univ. Dubl.; F.R C.P.I.; F.R. Met. S.c.

Diplomate in State Medicine and Ex-Sch. Trin. Cell. Dubl.

#### VITAL STATISTICS.

For four weeks ending Saturday, January 30, 1904. IRELAND.

#### TWENTY-TWO TOWN DISTRICTS.

The average annual death-rate represented by the deaths—exclusive of deaths of persons admitted into public institutions from without the respective districts—registered in the week ending January 30, 1904, in the Dublin Registration Area and the twenty-one principal provincial Urban Districts of Ireland was 22.4 per 1.000 of their aggregate population, which for the purposes of these returns is estimated at 1.093,289. The deaths registered in each of the four weeks ended Saturday, January 30, and during the whole of that period, in the several districts, alphabetically arranged, corresponded to the following annual rates per 1,000:—

Towns, &c.		Week	ending		Aver-			Week	ending	Aver-	
	Jan.	Jan. 16	Jan. 23	Jan. 30	Rate for 4 weeks	Towns, &c	Jan.	Jan. 16	Jan. 23	Jan. 30	Rate for 4 weeks
22 Town	27.0	26.5	23.9	22.4	25.0	Lisburn -	13.6	36.4	22.7	18.2	22.7
Districts Armagh -	13.7	-	41.2	20.6	18.9	Londonderry	16.4	22.7	17.6	15.1	18.0
Ballymena	14.4	23.9	19.2	14.4	18.0	Lurgan -	44.3	26.6	22.1	-	23.3
Belfast -	27.6	28.9	20.4	21.7	24.7	Newry -	33,6	33.6	21.0	25,2	28.4
Clonmel -	15.4	20.5	15.4	51.3	25.7	Newtown-	28.6	17.2	17.2	17.2	20.1
Cork -	31.5	19.9	28.1	16.4	24.0	ards Portadown -	20.7	25.8	15.5	10.3	18.1
Drogheda -	20.4	20.4	20.4	16.3	19.4	Queenstown	19.8	13.2	19.8	46.1	24.7
Dublin -	27.8	28.8	26.0	25.6	27.1	Slige -	9,6	9.6	4.8	19.2	10.8
(Reg. Area)  Dundalk	23,9	19.9	23.9	8.0	18.9	Tralee -	21.1	10,6	26.4	37.0	23.8
Galway -	46.6	27.2	27.2	42.7	35.9	Waterford -	21.4	15.6	33.1	15.6	21.4
Kilkenny -	9.8	4.9	44.2	9.8	17.2	Wexford -	42.0	28.0	37.4	9,3	29. <b>2</b>
Limerick -	31,4	31.4	31.4	27.3	30.4						

The deaths (excluding those of persons admitted into public institutions from without the respective districts) from certain epidemic diseases, registered in the 22 districts during the week ended Saturday, January 30, 1904, were equal to an annual rate of 1.4 per 1,000—the rates varying from 0.0 in sixteen of the districts to 6.6 in Queenstown. Among the 149 deaths from all causes registered in Belfast are one from measles, 10 from whooping-cough, and one from enteric fever.

#### DUBLIN REGISTRATION AREA.

The Dublin Registration Area consists of the City of Dublin as extended by the Dublin Corporation Act, 1900, together with the Urban Districts of Rathmines, Pembroke, Blackrock, and Kingstown. The population of this area is 378,994, that of the City being 293,385, Rathmines 33,203, Pembroke 26,025, Blackrock 8,759, and Kingstown 17,622.

In the Dublin Registration Area the births registered during the week ended Saturday, January 30, 1904, amounted to 190—95 boys and 95 girls; and the deaths to 196—103 males and 93 females.

#### DEATHS.

The deaths registered in the week ended Saturday, January 30th, 1904, represent an annual rate of mortality of 27.0 in every 1,000 of the population. Omitting the deaths (numbering 10) of persons admitted into public institutions from localities outside the area, the rate was 25.6 per 1,000. During the four weeks ending with Saturday, January 30, 1904, the death-rate averaged 28.0, and was 2.6 under the mean rate for the corresponding portion of the ten years 1894–1903.

There was one death from measles. Influenza caused 3 deaths. Eleven deaths from whooping-cough and one death from enteric fever were registered. In the preceding 4 weeks the deaths from whooping-cough had been 12, 9, 5, and 5 respectively, and the deaths from enteric fever had been 1, 6, 3 and 3 respectively. Diarrhœa caused one death.

Included in the 35 deaths due to tuberculous disease are 4 from tubercular phthisis, 22 from *phthisis*, 4 from tubercular meningitis, one from tabes mesenterica, and 5 from other forms of the disease.

Two deaths were assigned to carcinoma, 2 to sarcoma, and 4 to cancer (malignant disease).

Of 18 deaths from diseases of the brain and nervous system,

7 were caused by *convulsions*—all were of children under 5 years old.

There were 30 deaths from diseases of the heart and blood-vessels.

Of 41 deaths attributed to diseases of the respiratory system, 29 were caused by bronchitis, 4 by broncho-pneumonia, and 4 by *pneumonia*. The total (41) is equal to an annual rate of 5.6 per 1,000 of the population of the Dublin Registration Area, the annual average rate for the corresponding week of the preceding 10 years being 6.8 per 1,000.

Seven deaths from accidental violence were registered.

In 10 instances the cause of death was "uncertified," there having been no medical attendant during the last illness. These cases include the deaths of 7 children under 5 years of age (including 4 infants under one year old) and the deaths of 2 persons aged 60 years and upwards.

Fifty-three of the persons whose deaths were registered during the week ended January 30 were under 5 years of age (30 being infants under one year, of whom 5 were under one month old), and 52 were aged 60 years and upwards, including 21 persons aged 70 and upwards, of whom 3 were octogenarians, and one (a female) was stated to have been aged 90 years.

The Registrar-General points out that the names of causes of death printed above in italics should be avoided whenever possible in Medical Certificates of the Cause of Death.

#### STATE OF INFECTIOUS DISEASE IN THE DUBLIN REGISTRATION AREA AND IN BELFAST.

Returns of the number of cases of infectious diseases notified under the "Infectious Diseases (Notification) Act, 1889," as set forth in the following table, have been furnished by Sir Charles A. Cameron, C.B., M.D., Medical Superintendent Officer of Health for the City of Dublin; Mr. Fawcett, Executive Sanitary Officer for Rathmines and Rathgar Urban District; Mr. Manly, Executive Sanitary Officer for Pembroke Urban District; Mr. Heron, Executive Sanitary Officer for Blackrock Urban District; Dr. Byrne Power, Medical Superintendent Officer of Health for Kingstown Urban District; and Dr. Whitaker, Medical Superintendent Officer of Health for the City of Belfast.

Table showing the Number of Cases of Infectious Diseases notified in the Dublin Registration Area (viz.—the City of Dublin and the Urban Districts of Rathmines and Rathgar, Pembroke, Blackrock, and Kingstown), and in the City of Belfast, during the week ended January 30, 1904, and during each of the preceding three weeks.

CITIES AND URBAN DISTRICTS		Week ending	Small-pox	Measles	Rubella, or German Measles.	Scarlet Fever	Typhus Fever	Relapsing Fever	Diphtheria	Membranous Cronp	Continued Fever	Typhoid or Enteric Fever	Erysipelas	Puerperal Fever	Varicella	Other Notifiable Diseases	Total
City of Dublin	$\bigg\}.$	Jan. 9 Jan. 16 Jan. 23 Jan. 30	Ē	9 5 11 7	- - 1	13 12 20 15	1 1 -	-	3 2 2 7	-	2 1 4	6 23 15 18	19 16 8 22	1	1 - -	-	54 60 64 71
Rathmines and Rathgar Urban District	- (	Jan. 9 Jan. 16 Jan. 23 Jan. 30	- - -	-	-	1 -		-	-	-		2 - 1	1 1 -	-	- - 2		3 3 5 2
Pembroke Urban District -	-{	Jan. 9 Jan. 16 Jan. 23 Jan. 30		- 1 - -	- 1	- 2 -		-	1 1 -	-	- - 1	1 3 - 3	- - 1	- - - -	2 -	2 - 4 6	4 9 4 11
Blackrock Urbun District -		Jan. 9 Jun. 16 Jan. 23 Jan. 30	- - -	-	-	3	-	- :		-	-	-		-	1 - -		4 - - 2
Kingstown Urban District -	-{	Jan. 9 Jan. 16 Jan. 23 Jan. 30	- - -	-	=	1 1 - 2		-	1 - -		-	1	1 1	-	- 1 -		3 2 2 2
City of Belfast	-{	Jan. 9 Jan. 16 Jan. 23 Jan. 30	2 2 7 3	-	=	16 13 20 17	- - -	-	9 2 3 5	- 1 1	1 2 1	8 6 5 11	$\frac{11}{7}$ $\frac{16}{9}$	1 1 -	-	-	51 32 57 50

#### Cases of Infectious Diseases under Treatment in Dublin Hospitals.

During the week ended Saturday, January 30, 1904, 7 cases of measles were admitted to hospital, there was one death, 10 patients were discharged convalescent, and 36 patients remained under treatment at its close.

Seventeen cases of scarlet fever were admitted to hospital, 23 cases were discharged, and 101 cases remained under treatment at the close of the week. This number is exclusive of 9 patients still under treatment at Beneavin, Glasnevin, the Convalescent Home of Cork-street Fever Hospital, Dublin.

Four cases of typhus fever remained under treatment at the close of the week.

Eight cases of diphtheria were admitted to hospital, 6 were

discharged, and 16 cases remained under treatment at the close of the week.

Twelve cases of enteric fever were admitted to hospital, 8 cases were discharged, and 67 cases remained under treatment at the close of the week.

In addition to the above-named diseases, 2 cases of pneumonia were admitted to hospital, 7 patients were discharged, and 44 cases remained under treatment at the end of the week.

#### ENGLAND AND SCOTLAND.

The mortality in the week ended Saturday, January 30, 1904, in 76 large English towns, including London (in which the rate was 19.5), was equal to an average annual death-rate of 19.4 per 1,000 persons living. The average rate for 8 principal towns of Scotland was 18.4 per 1,000, the rate for Glasgow being 17.8 and for Edinburgh 16.8.

#### METEOROLOGY.

Abstract of Observations made in the City of Dablin, Lat. 53° 20' N., Long. 6° 15' W., for the Month of January. 1904.

Mean Height of Barometer, - - 29.813 inches. Maximal Height of Barometer (22nd, 9 a.m.), - 30.757 Minima Height of Barometer (14th, 1 30 a.m.), 28.757 Mean Dry-bulb Temperature, - - 41.9]. Mean Wet-bulb Temperature, -- 40.1°. - 37.9°. Mean Dew-point Temperature, Mean Elastic Force (Tension) of Aqueous Vapour, .231 inch. - 86.6 per cent. . . Mean Humidity, - 54.8°. Highest Temperature in Shade (on 27th), - 31.5°. Lowest Temperature in Shade (on 16th), Lowest Temperature on Grass (Radiation) (31st), 27.8°. Mean Amount of Cloud, - - 54.9 per cent. - 2.535 inches. Rainfall (on 19 days), - .550 inch. Greatest Daily Rainfall (on 3rd), - S.W., W. General Directions of Wind, -

#### Remarks.

An open, damp and rainy month, with an overwhelming prevalence of S.W. and W. winds, except at the very beginning, when Ireland was still within the "sphere of influence" of the

great continental anticyclone, which caused severe frost in Central Europe up to the 8th inclusive, and again from the 17th to the 29th inclusive. These cold "snaps" were separated by a sudden and extreme rise of temperature on the 13th and 14th, when the thermometer rose to 50° or upwards over France, Belgium, and many parts of Germany. This wave of warmth was brought by the S.W. winds of a vast atmospheric depression, which was central near the Shetlands at 8 a.m. of the 14th, the barometer at that hour reading 28.33 inches at Sumburgh Head. In Dublin the lowest pressure recorded was 28.757 inches about 1 30 a.m. of the day named. As this great disturbance moved away to the eastward, it gradually filled up and was followed by a large anticyclone, in which the barometer rose to 30.757 inches, or exactly two inches higher, in Dublin on the morning of the 22nd. The month was very open in Ireland, Scotland, and Scandinavia. Some sharp frosts were experienced in England—particularly in the Thames Valley and over the southeastern counties.

The duration of bright sunshine was estimated at 49.75 hours, the daily average being 1.6 hours. The corresponding values for January, 1901, were 64 hours and 2.1 hours; for January, 1902, 54 hours and 1.7 hours; and for January, 1903, 56.5 hours and 1.8 hours.

In Dublin the arithmetical mean temperature  $(42.6^{\circ})$  was above the average  $(41.6^{\circ})$  by one degree; the mean dry-bulb readings at 9 a.m. and 9 p.m. were  $41.9^{\circ}$ . In the thirty-nine years ending with 1903, January was coldest in 1881 (M. T. =  $33.2^{\circ}$ ), and warmest in 1898 (M. T. =  $47.8^{\circ}$ ). In 1902 the M. T. was  $43.0^{\circ}$ ; in 1903 it was  $42.1^{\circ}$ .

The mean height of the barometer was 29.813 inches, or 0.061 inch below the corrected average value for January—namely, 29.874 inches. The mercury rose to 30.757 inches at 9 a.m. of the 22nd, having fallen to 28.757 inches at 1 30 a.m. of the 14th. The observed range of atmospheric pressure was, therefore, exactly 2 inches.

The mean temperature deduced from daily readings of the dry-bulb thermometer at 9 a.m. and 9 p.m. was  $41.9^{\circ}$ , or  $0.5^{\circ}$  above the value for January, 1903. Using the formula, *Mean Temp.* =  $Min. + (Max. - Min. \times .52)$ , the M. T. becomes  $42.7^{\circ}$ , compared with a thirty years' (1871–1900) average of  $41.7^{\circ}$ . The arithmetical mean of the maximal and minimal readings was  $42.6^{\circ}$ , compared with a thirty years' average of  $41.6^{\circ}$ . On the

27th the thermometer in the screen rose to 54.8°—wind, S.S.W.; on the 16th the temperature fell to 31.5°—wind, W. by N. The minimum on the grass was 27.8°, on the 31st—wind, W.

The rainfall was 2.535 inches, distributed over 19 days. Of this amount 1.328 inches fell on three consecutive days—the 2nd, 3rd and 4th. The average rainfall for January in the thirty-five years, 1866–1900, inclusive, was 2.230 inches, and the average number of rainy days was 18. The rainfall, therefore, and rainy days were somewhat above the average. The record rainfall for January was in 1895—namely, 5.711 inches on 24 days. In 1876, only .406 inch was measured on but 9 days. In 1902, 1.614 inches fell on 12 days; in 1903, 3.269 inches on 20 days.

The atmosphere was foggy on the 5th, 11th, 12th, 19th, 21st, 22nd, 23rd, and 30th. High winds were noted on 13 days, reaching the force of a gale on 6 days—the 10th, 13th, 14th, 27th, 28th, and 29th. Snow or sleet fell on the 3rd, 15th, and 16th; hail on the 3rd, 10th, 13th, 14th, and 15th. Temperature exceeded 50° in the screen on 8 days; while it fell to 32° in the screen on only 3 nights, compared with 7 nights in 1903 and 1902, 3 nights in 1901, 2 in 1900, 4 in 1899, only 1 night in 1898, 13 nights in 1897, only 3 in 1896, 18 in 1895, and 15 in 1892. The minima on the grass were 32° or less on 11 nights, compared with 9 nights in 1903, 12 nights in 1902, 11 nights in 1901, 13 nights in 1900, 16 in 1899, only 3 in 1898, 21 in 1897, 8 in 1896, 29 in 1895, and 25 in 1892.

In Dublin the rainfall up to January 31st, 1904, amounted to 2.535 inches on 19 days, compared with 3.269 inches on 20 days in 1903, 1.614 inches on 12 days in 1902, 2.672 inches on 17 days in 1901, 2.579 inches on 27 days in 1900, 2.483 inches on 24 days in 1899, 1.786 inches on 14 days in 1898, 2.694 inches on 17 days in 1897, only .720 inch on 14 days in 1896, and with a thirty-five years' average (1866–1900) of 2.230 inches on 18 days.

At the Normal Climatological Station in Trinity College, Dublin, the mean height of the barometer was 29.808 inches, the highest reading observed being 30.753 inches at 9 a.m. of the 22nd, the lowest, 28.864 inches at 9 a.m. of the 13th. The mean temperature was 43.0°, the mean dry-bulb reading at 9 a.m. and 9 p.m. being 42.5°. Rain fell on 16 days to the amount of 2.453 inches, .569 inch being measured on the 3rd.

At Cloneevin, Killiney, Co. Dublin, the rainfall was 2.42 inches

on 17 days, .47 inch being measured on the 2nd. The average fall in January for the 19 years, 1885–1903, was 2.342 inches on 17.2 days. In 1895 the rainfall was 5.93 inches on 24 days; in 1896, .70 inch on 9 days; in 1897, 3.08 inches on 20 days; in 1898, 1.58 inches on 13 days; in 1899, 2.93 inches on 22 days; in 1900, 2.82 inches on 25 days; in 1901, 2.83 inches on 15 days; in 1902, 1.62 inches on 12 days; and in 1903, 2.82 inches on 21 days. Snow fell on the 16th.

At Knockdolian, Greystones, Co. Wicklow, the rainfall was 2.735 inches on 17 days, compared with 3.300 inches on 15 days in 1903; 1.860 inches on 9 days in 1902; 4.035 inches on 16 days in 1901; 3.766 inches on 24 days in 1900; 4.395 inches on 24 days in 1899; 2.345 inches on 13 days in 1898; 3.660 inches on 20 days in 1897; and only .485 inch on 7 days in 1896. The heaviest fall in 24 hours was .570 inch, on the 2nd.

Dr. B. H. Steede, writes that at the National Hospital for Consumption, Newcastle. Co. Wicklow, rain fell to the amount of 3.310 inches on 18 days, the maximal falls in 24 hours being .522 inch on the 4th, and .519 inch on the 29th. The shade thermometers rose to 53.0° on the 18th, and fell to 32.5° on the 16th and 31st. In January, 1899, the rainfall at this Second Order Station, was 4.760 inches on 23 days; in 1900, 3.810 inches on 28 days; in 1901, 3.541 inches on 14 days; in 1902, 1.666 inches on 12 days; and in 1903, 4.320 inches on 19 days.

Dr. Arthur S. Goff reports that at Lynton, Dundrum, Co. Dublin, the rainfall was 3.59 inches on 25 days, .63 inch being measured on the 2nd. The corresponding figures for 1902 were 2.28 inches on 14 days, and for 1903, 3.88 inches on 19 days. The mean shade temperature was 42.4°, compared with 40.6° in 1902, and 41.9° in 1903, the extreme readings being—highest, 53°, on the 26th; lowest, 31°, on the 16th, on which day snow ell.

· In Cork the rainfall was 5.30 inches on 26 days, an amount which was 1.30 inches above the average. In 1903, 8.07 inches of rain fell on 26 days.

At the Ordnance Survey Office, Phonix Park, Dublin, rain fell on 21 days to the amount of 2.561 inches, .505 inch being measured on the 4th. The total amount of sunshine was 52.6 hours, the largest daily duration being 5.3 hours on the 31st.

At the Railway Hotel, Recess, Connemara, Co. Galway, the rainfall was 8.814 inches on 26 days, the maximal fall in 24 hours being .830 inch on the 6th. The observer, Mr. A. A. Smith,

remarks that severe weather prevailed—thunder, lightning, hail and sleet being of frequent occurrence during the month. He reports thunderstorms on the 7th, 27th and 29th, and thunder and lightning on the 13th.

Dr. J. Byrne Power, F.R. Met. Soc., Medical Superintendent Officer of Health, Kingstown, Co. Dublin, reports that the mean temperature of that Health Resort was 43.6°, being 0.6° below the average for the month of January during the previous 6 years. The extremes were—highest, 53.5° on the 26th; lowest, 33.5° on the 16th and 31st. At Bournemouth the mean was 40.6°, the extremes being-highest, 52° on the 13th and 14th; lowest, 27° on the 23rd, and the thermometer there fell below 32° on 5 other days during the month. The mean daily range of temperature was 7.7° at Kingstown, but at Bournemouth it was 9.8°. The mean temperature of the sea at Sandveove bathing-place was 42.7°, being 2.6° below the average for January during the previous 6 years. The mean relative humidity of the atmosphere was 84 per cent., being the highest recorded for the month at Kingstown since Jahuary, 1900; at Bournemonth it was 90 per cent. The total duration of bright sunshine was 49.2 hours, being 7.8 hours below the average for January during the previous 3 years. It was 52.6 hours at the Ordnance Survey Office, Phoenix Park; 35.4 hours at Valentia, 33.1 hours at Parsonstown, 35.2 hours at Southport, and 33.2 hours at Eastbourne.

#### A FRENCH BIBLIOGRAPHY OF SCIENCE.

Messrs. J. B. Baillière & Son, 19 rue Hautefeuille, Paris, have just published (1904) a general catalogue of scientific works, running to H2 closely printed pages. The catalogue includes in alphabetical order the full names of the authors of about 5,000 works on Medicine, Natural History, Agriculture, Veterinary Science, Physics, Chemistry, Technology, and Industry, with the date of publication, the size of the book in each case, the number of pages, of illustrations, and plates. A methodical table of subjects, extending to 17 pages, further indicates the principal authors who have written on more than 1,500 topics connected with the various sciences. This "Bibliography," indispensable to all scientific workers, will be sent gratis and post free to all readers of this Journal, who make application to Messrs. J. B. Baillière & Son, by reply post card (reply paid).

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#### THE MERGING OF TWO MEDICAL JOURNALS.

Messrs. E. B. Treat & Co., of New York, the publishers of the International Medical Magazine and of the Archives of Pediatrics, have decided to merge the two journals. During the five years that Dr. Boardman Reed had charge of the International Medical Magazine it was his constant aim to have the periodical of the highest character, readable and reliable. The publishers regret that they must discontinue the Magazine, and extend to Dr. Reed their appreciation of his editorial labours. It is hoped that the friends of the International Medical Magazine will continue their interest by reading the Archives of Pediatrics, and thus extend its field of usefulness. The Editor is Dr. Walter Lester Carr.

#### THE TENDO-ACHILLIS JERK AND OTHER REFLEXES IN DIABETES MELLITUS.

R. T. WILLIAMSON, M.D. Lond., F.R.C.P., of Manchester, has recently examined the tendo-Achillis jerks in fifty cases of diabetes mellitus, and has found both absent in nineteen. It is well known that the knee-jerks are often lost in severe forms of diabetes, and when the knee-jerks have been absent in diabetes he has usually found the tendo-Achillis jerks lost also. But it is interesting to note that in diabetes mellitus, as in locomotor ataxia, the tendo-Achillis jerks may disappear before the knee-jerks are lost. Thus in eight cases of diabetes in which the tendo-Achillis jerks reflexes were lost, the knee-jerks were present. In tabular form, the results of the examination of the tendo-Achillis jerks and kneejerks in fifty cases of diabetes were as follows: -(A) Tendo-Achillis jerks both absent in 19 cases—in these cases, knee-jerks both present in 8; one knee-jerk absent, one present, in 3; both knee-jerks absent in 8. (B) One tendo-Achillis jerk absent, one present, in 2 cases; in these cases both knee-jerks present. (C) Tendo-Achillis jerks both present in 29 cases; in these cases both knee-jerks present in 28; one knee-jerk present, one absent, in 1. The knee-jerks are often lost in severe forms of diabetes, especially

in hospital patients; whilst among private patients, with better conditions of life, the knee-jerks are lost less frequently. In 100 cases of diabetes nearly all of whom are hospital patients, Dr. Williamson found the condition of the knee-jerks as follows:— Both jerks lost in 49 cases; one present, one absent, in 6; both present in 45. Amongst 50 cases of diabetes recently examined in private practice he found:—Both knee-jerks lost in 6 cases; one present, one absent, in 1; both present in 43. In severe cases of diabetes the wrist-jerks are often absent; usually they are lost when the knee-jerks are absent. In 50 cases (mostly of the severe form) the condition of the wrist-jerks was as follows:-Both absent in 30 cases; both present in 19; one absent, one present, in 1. It is to be remembered that the wrist-jerks are sometimes absent in healthy individuals. In the examination of over 100 individuals, who either were in good health or were suffering from some local surgical affection not likely to have any influence on the reflexes, Dr. Williamson found the wrist-jerks present in 75 per cent., absent in 25 per cent. The superficial reflexes—plantar, abdominal and epigastric—are probably as frequently present in diabetes as in health. In the severe forms of diabetes, when the knee-jerks are absent, the superficial reflexes are generally present, and the abdominal and epigastric reflexes are usually much increased. The plantar reflex is of the normal flexor type. In cases in which the knee-jerks are lost, the author had not found any evidence of muscular hypotonus, which is so common in tabes.—Review of Neurology and Psychiatry, October, 1903.

FIRST FRENCH CONGRESS OF CLIMATOTHERAPY AND HYGIENE OF TOWNS.

This Congress will be held at Nice, during the Easter vacation, from April 4th to 9th, 1904. Professor Chantemesse has been named President; the Vice-Presidents are—Professor Renaut (Lyon), Professor Grasset (Montpellier), Professor Calmette (Lille), Dr. Balestre (Nice). The discussions will bear on five questions:—1. "The Climate of the French Mediterranean Coast"—Reporting Secretary, Dr. Chiais, Mentone. 2. "Adaptation of the individual to Climate"—Reporting Secretary, Dr. Manquat, Nice. 3. "Influence of the French Mediterranean Coast Climate on Tuberculosis and Tubercular Patients": (a) Clinical and critical discussion on the special conditions

required in order to benefit by this influence—Reporting Secretary, Dr. Baréty, Nice; (b) treatment of such patients at their homes—Reporting Secretary, Dr. Guiter, Cannes: (c) treatment of such patients under supervision: Sanatoriums for patients in easy circumstances-Reporting Secretary. Dr. Malibran, Mentone; establishments for the treatment of poor patients suffering from scrofula or pulmonary tuberculosis—Reporting Secretary, Dr. Vidal, Hyères; additional reporting Secretary, Dr. Rénou, Physician to the Paris Hospitals. 4. "The Influence of Climate on the French Mediterranean Coast on Rheumatism and on those subject to Rheumatism—Reporting Secretary, Dr. Moriez, Nice: additional Corresponding Secretaries, Dr. Huchard (Member of the Academy of Medicine). Dr. Triboulet (Physician to the Paris Hospitals). 5. "Disinfection of Towns"-Reporting Secretaries, Dr. Balestre, Dr. Camous, Nice. Great travelling facilities in France and abroad will be granted to members of the Congress and their families. The hotel prices at Nice will be reduced in their favour and may be ascertained beforehand. The members of the Executive Committee for England are: Dr. G. H. Brandt, Nice; Dr. Johnston Lavis, Beaulieu; Dr. MacDougall, Cannes: Dr. Price Mitchell, Monte-Carlo: Dr. Stanley Rendall, Mentone. For further particulars, Dr. Hérard de Bessé, Secretary-General of the Congress, Beaulieu-sur-Mer, may be consulted by letter. The members of the Congress will be allowed reductions (50% and upwards), the greater part available from the 1st to the 20th of April, 1904, on the great railway lines of France, the South of France, and Corsica; on certain English railways (London-Paris) on the steam-liners, running between Nice, Marseille, Corsica, Genoa; on the Italian railways; on sleeping cars in France and neighbouring counties. Reduced prices have already been conceded at the chief hotels in Nice, Beaulieu-sur-Mer, Cannes, Mentone, Monaco, &c., a list of which will be supplied on application to Dr. Camous (2 rue de l'Opéra, Nice), specially charged with this matter. Outside of Nice, the members of the Congress will officially visit Monaco, Mentone, Cannes, and Grasse, where fêtes and excursions will be organised in their honour. His Serene Highness the Prince of Monaco will hold a reception at the Palace, and there will be a gala representation at the Casino. At Nice, besides the reception by the authorities there will be gala representations (Opera, &c.). The number of places, limited in the theatres, will be reserved to the first booked. After the close of the Congress excursions will be organised. Medical students, the families of the members, accompanying the latter, and adhering to the Congress (Special Ticket, 10 frs.), will enjoy the same advantages. In order to take part in the Congress, it suffices to remit to Dr. Bonnal, treasurer (19 boulevard Victor-Hngo, Nice), the amount of the subscription (20 francs), together with names, qualities, titles, exact address very legibly written. Applications should be accompanied with the subscriber's visiting card.

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